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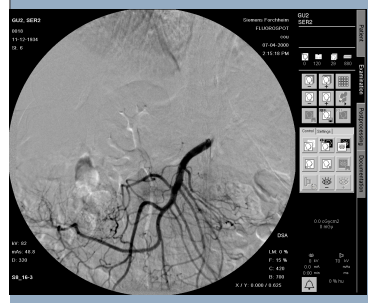
FLUOROSPOT Compact

Operator Manual
Digital Imaging System for AXIOM Iconos R200



FLUOROSPOT Compact

Operator Manual
Digital Imaging System for AXIOM Iconos R200

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Operator Manual
Imaging System for AXIOM Iconos R200
Software VE22 or higher

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Usability

BEFORE USING THIS SYSTEM

This system should be used only by employees adequately trained in the use of this equipment.
Before using this system, the operator should be thoroughly acquainted with the instructions for use and safety recommendations provided in this manual.
Failure to follow the instructions for use and safety recommendations provided in this manual can cause serious injury to the patient, to the operator or to other persons.

Please observe the system's Safety Operator Manual.
Important information is given there.

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Additional notes on safety

For general notes on safety see the *Safety* part of the system Operator Manual.

Please observe the safety notes in the following chapters.

Note

Do *not* use the spacer on the rear side of the computer housing as a handle or use for carrying.

Image failures

If no image appears on the monitor or if image quality has deteriorated noticeably, this can be due to a defect in the system. To check this:

✧ Shut down the system and turn it on again.
– The system performs a self-test when turned on.

✧ Pay attention to error messages during restart.

If the fault remains:

✧ Shut down the system and call Siemens Service.

Caution

If image display quality deteriorated due to a defect.

Risk of error in diagnosis caused by poor image quality

✧ Shut down the system and call Siemens Service.

Image archiving

The FLUOROSPOT Compact offers image archiving via network or CD-R.
Transferring/Archiving images to DICOM on page 159

Caution

The hard disk of the imaging system is *not* suitable for image archiving.

Risk of data loss due to system failure (e.g. defective hard disk)

✧ Always archive patient and image data on suitable archive media.

Third-party software

Only software authorized by Siemens for use with this product may be used.

Caution

Use of non-approved or manipulated software or hardware components

Risk of malfunctions posing a hazard to patients and equipment

✧ Only use software or hardware components approved by Siemens.

✧ Modifications shall be performed only with our expressed written approval.

Computer viruses

The FLUOROSPOT Compact imaging system must be operated within a 'secured network', i.e. the network to which the imaging system is connected must be protected from computer viruses, worms, etc.

Caution

Computer virus infections, computer worms etc.

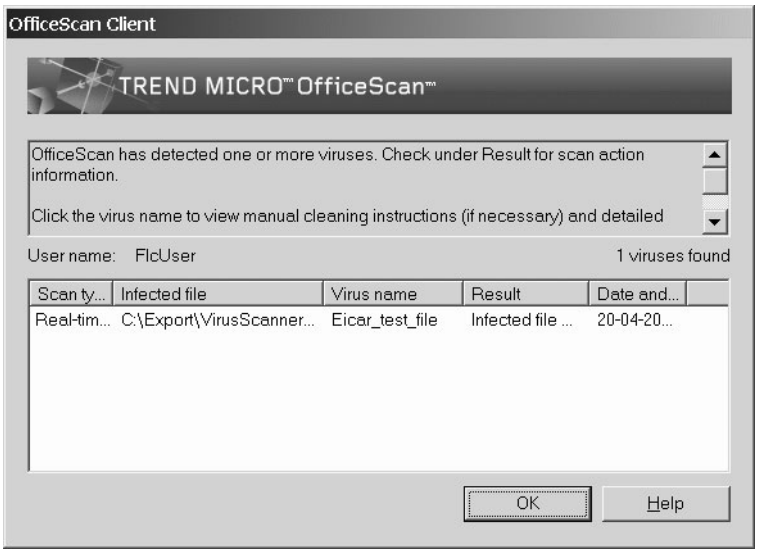
Risk that the system is not operational anymore
Risk of data loss

✧ Always operate the imaging system within a secured network.

Virus scanner

To protect the FLUOROSPOT Compact imaging system from common computer viruses, a virus scanner is installed.

If a virus is found, a window pops up.



Note

In this case it is mandatory to call the *Siemens Service*!

✧ *Don't* try to act by yourself!

Options

This operator manual describes all system features of all system variants.

Note

The complete system is described with all options and components that have been released. Possible options have not been specially marked.

Particular options or components may not be available for specific systems.

The quotation text of your order is the sole reference for the functional scope of your system.

✧ If your system does not have a specific feature, please contact your local sales representative.

Value statements

All technical data are typical values unless specific tolerances are stated.

Values shown in pictures of the software user interface have no clinical meaning.

✧ Please only set the values preset in the organ programs provided or the values recommended by experienced application specialists.

Illustrations

All illustrations of equipment and of the program user interface shown in this Operator Manual are *examples* only. The functions actually available depend on the type of system, the installed options, and the current configuration.

Other differences in detail may occur in your system due to constant development and improvement of the system.

Reproduction of images can cause loss of detail. Pictures in this Operator Manual do not therefore provide any indication of image quality.

Names

All names of patients shown in figures are purely fictional. Any similarities with existing persons are entirely coincidental.

Warnings and hints

In some cases, the imaging system has to inform you about certain facts. Then, an information window is displayed.

There are different types:

❑ Question!
The system asks you to decide something.

❑ Information!
The system informs you about a certain fact.

❑ Warning!
The system warns you about possible consequences.
Ignoring the warning may lead to severe consequences.

❑ Operation hint
You tried to perform an action which is not possible in the current state of the system.

Introduction

The **FLUOROSPOT Compact** (FLC) you have purchased is a digital imaging system which opens up new dimensions in digital fluororadiography.

The basic system of the FLUOROSPOT Compact is based on a PC with the Windows XP® operating system.

With only a basic knowledge of the operation of PCs and Windows® you can quickly learn how to operate the imaging system.

Capabilities

The imaging system provides simple use and numerous functions for radiological diagnostics, such as:

- ❑ Study administration
- ❑ Organ program management
- ❑ Integrated generator control console
- ❑ Image acquisition and display
  – DFR[1] images or series from the image intensifier and the CCD camera
- ❑ Image postprocessing
  – Annotation functions
  – Graphic functions
  – DSA functions
  – Functions for checking the image quality
- ❑ Documentation (film preview, filming, paper printing, medical report and DICOM send)
- ❑ Archiving via network or on CD-R

Acquisition system

This version of the FLUOROSPOT Compact is suitable for image acquisition and reporting with the following acquisition systems:

- ❑ AXIOM Iconos R200

Application

The FLUOROSPOT Compact imaging system can be used for many types of radiological examinations.

Please also refer to the operator manual of the system.

With the FLUOROSPOT Compact imaging system, digital radiographic images can be acquired, processed, displayed and managed.

[1] DFR = Digital Fluoro Radiography

Overview

Basic system

The FLUOROSPOT Compact digital imaging system consists of the following components:

- ❑ Computer and camera electronics
- ❑ Image monitors (TFT LCDs) in the examination room and in the control room
- ❑ CD drive
- ❑ Keyboard and mouse

At the camera system:

- ❑ CCD camera

Using the appropriate inherent software you control the imaging system and perform image analysis.

Imaging system configuration

The FLUOROSPOT Compact imaging system provides the following features:

Patient registration

- ❑ DICOM Worklist (HIS/RIS) for receiving patient data from a clinical network, MPPS (included in DICOM Worklist)
- ❑ Barcode reader for entering patient data

Examination

- ❑ Fluoro loop
- ❑ DSA and ROADMAP
- ❑ PERI Stepping
- ❑ Reference image monitors (TFT LCDs) in the examination room and/or in the control room
- ❑ Additional disk capacity for storing a larger number of images
- ❑ CAREPROFILE
- ❑ CAREPOSITION
- ❑ CAREVISION
- ❑ SUPERVISION

Postprocessing

- ❑ Harmonization (DDO), also online
- ❑ Stenosis quantification

Documentation

- ❑ CD-R recording for archiving your images in various formats
- ❑ Interface for storing fluoroscopy images and acquisitions onto a video recorder
- ❑ DICOM Send for transferring images into a clinical network
- ❑ DICOM Print for transferring images to a hardcopy camera via a clinical network
- ❑ DICOM Query/Retrieve for retrieving images from a clinical network
- ❑ Paper printer

Transfer operations are carried out in the background.

HIPAA

The HIPAA (Health Insurance Portability and Accountability Act) feature provides mechanisms to secure the FLUOROSPOT Compact imaging system, patient data and images from misuse by unauthorized persons.

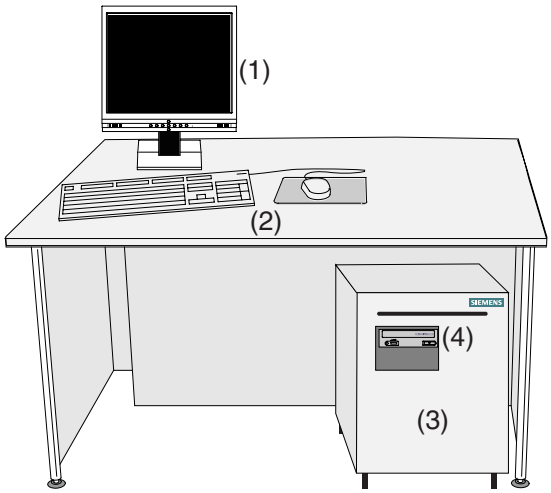
Operating elements and displays

Places of operation

The imaging system functions can be operated from the control room as well as from the examination room:

- ❑ Via keyboard and mouse on the console from the control room
- ❑ Via infrared remote control from the examination or control room
  Infrared remote control on page 18

The console



FLC console

(1) Image monitor (LCD)

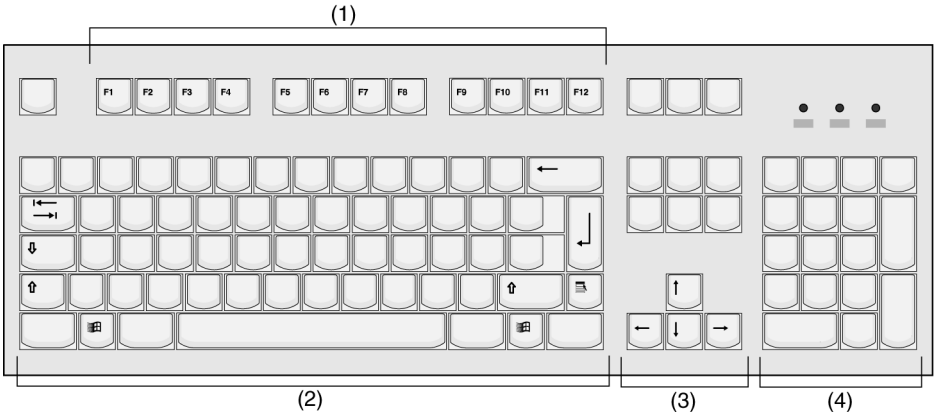
(2) Keyboard and mouse

(3) Computer with camera electronics

(4) CD-R drive

Keyboard

The imaging system is equipped with a standard PC keyboard.



(1) Function keys

(2) Alphanumeric keys

(3) Cursor control keys

Function overview and key assignment on page 26

(4) Numeric/*syngo*® keypad

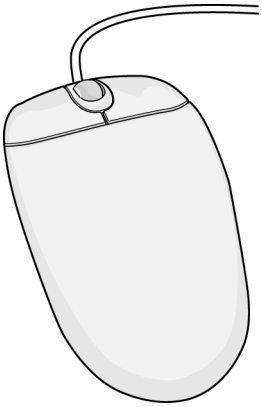
Note

If a *syngo*® keyboard is installed, the symbols on the keys do *not* apply.

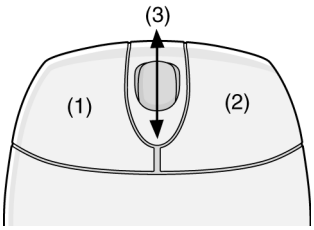
The numeric/*syngo*® keypad is without function except the **Enter** key.

The **Enter** key has the **Return** key function.

Mouse



A mouse with two buttons and one wheel is connected to the PC.



(1) With the left mouse button, you execute most actions.

(2) With the right mouse button, you can mark images, for example.[1]

(3) By rotating the wheel, you can scroll in the study lists and in the image directories.

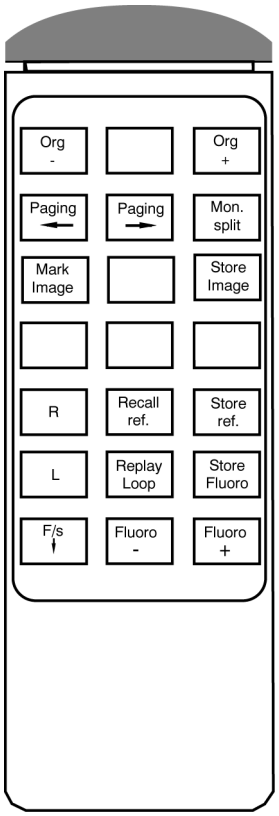
Terms

In this operator manual, various terms are used in connection with the mouse:

- *Click*: Move the mouse in such a way that the mouse pointer on the screen is pointing to the object in question. Now press the mouse button[1] and release it again.
- *Double-click*: Like clicking, but you press the mouse button twice in quick succession.[1]
- *Drag (and drop)*: Like clicking, but you keep the mouse button pressed while moving the mouse.[1]

[1] Where click appears in the text, we always mean the left mouse button unless the right mouse button is mentioned explicitly.

Infrared remote control



With the infrared remote control, you can control certain functions of the imaging system remotely in the examination room:

Note

The function of the keys on the infrared remote control depends on the system.

Some keys may not work on your system. Some keys may have been labelled differently. Depending on configuration the following functions are possible:

IR key	Short description
Org - / **Org +** *	Switch to previous/next organ program Selection of remote organ programs 1 to 7
Careposition	CAREPOSITION on/off
Paging ←	Show previous image (of a series)† Select previous mask in remask function
Paging →	Show next image (of a series)† Select next mask in remask function
Mon. Split	Toggle study / series overview, fullscreen display (discards LIH or not stored fluoro loop; no function with fluoro loop replay)
Mark Image	Mark /unmark an image‡
Mon 1 → 2	Copy image to reference image monitor
Store Image	Store a LIH or a fluoro image of a fluoro loop‡
Sub. / Native	Alternate between subtracted and native image display**
Remask	Select function to change mask image**
Roadmap	Select/deselect ROADMAP
R	Preselect label R on the left side of the image
L	Preselect label L on the right side of the image
Store ref.	Store the current image as a reference image††
Recall ref.	Recall the current reference image††
Replay Loop	Replay series: start/stop loop‡‡
Store Fluoro	Store the current fluoro loop
F/s ↓	Change frame rate before and during series acquisition

IR key	Short description
Fluoro - / **Fluoro +**	Switches to next lower/higher fluoro mode ❑ On systems with SUPERVISION: Switch between standard fluoroscopy and supervision ❑ On systems with CAREVISION (pulsed fluoroscopy): Change the pulse frequency for fluoroscopy (including selection of standard fluoroscopy)

* not with SIRESKOP CX, ICONOS R200

† no function with LIH or with fluoro loop replay

‡ also during fluoroscopy

**only with stored DSA series

††no function with LIH, or non stored image, or with fluoro loop replay

‡‡no function with single LIHs or images

Note

During acquisition only the key **F/s** ↓ is enabled.

During fluoroscopy only the keys **Fluoro -/+**, **Mark Image** and **Store Image** are enabled.

Note

If you press a button on the infrared remote control, which function is not applicable in the current operating state of the imaging system, then the symbol shown is displayed on the upper right-hand corner of the screen. The function will not be executed.

The application program

Languages

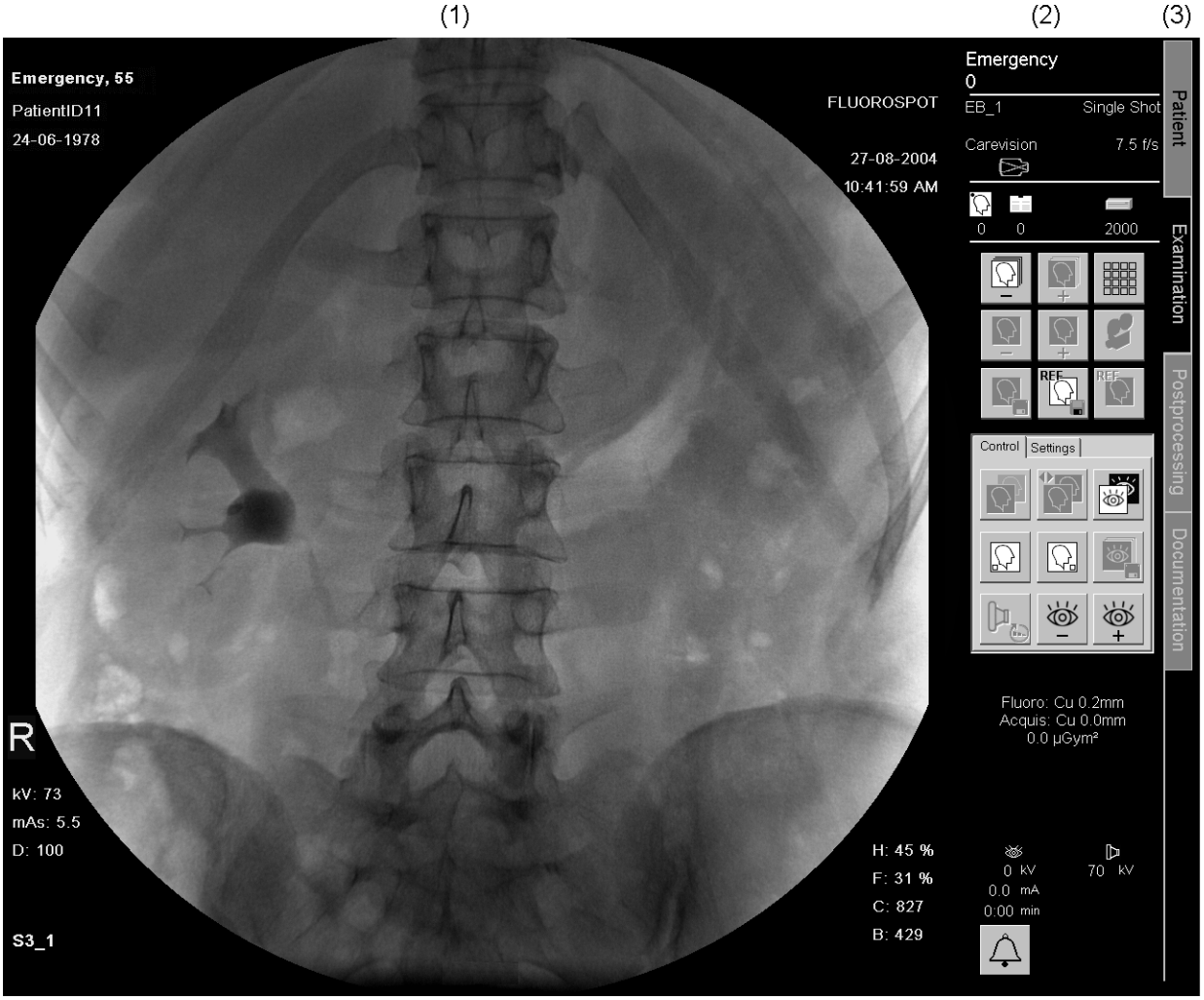
The FLUOROSPOT Compact system can be configured by the Siemens Customer Service in one of the following languages (user interface and keyboard layout):

- ❑ English
- ❑ German
- ❑ French
- ❑ Spanish
- ❑ Russian
- ❑ Swedish keyboard (for use with the English user interface)
- ❑ Portuguese (with Spanish keyboard)
- ❑ Italian
- ❑ Chinese

The user interface for HIPAA administration is available in English only.

Imaging system user interface

On the image monitor all acquired images are displayed. You can perform all functions required for examination, data entry, image acquisition, postprocessing and documentation.



(1) Display area for images and lists
(2) Control area
(3) Tabs of the task cards for mode selection
(4) Patient information
(5) System information
(6) Resource information
(7) Display control
(8) Subtask cards for function selection
(9) Indication of radiation parameters

Basic modes / task cards

To simplify operation, the application program has four modes. Each mode is available on a *task card*.

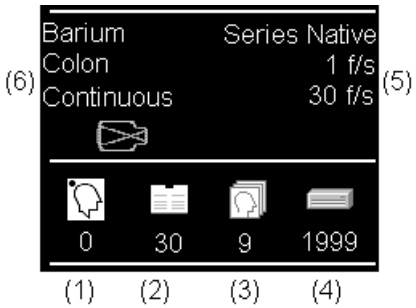
- **Patient** mode: study lists, input of patient data and archiving; basic settings
- **Examination** mode: fluoroscopy and acquisition, settings for organ and fluoro programs
- **Postprocessing** mode: image postprocessing
- **Documentation** mode: hardcopy and DICOM send

To select a mode:

✧ Click on the corresponding task card tab with the mouse.

System and resource information

On the top right-hand side, the following system information is displayed (example):



(1) Marked images of current study

(2) Images in current study

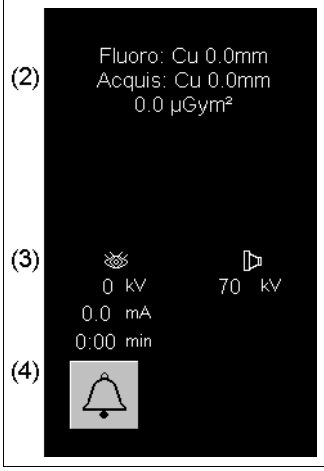
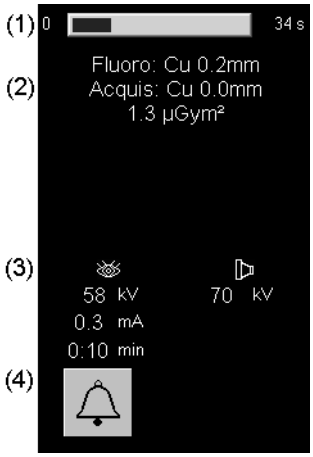
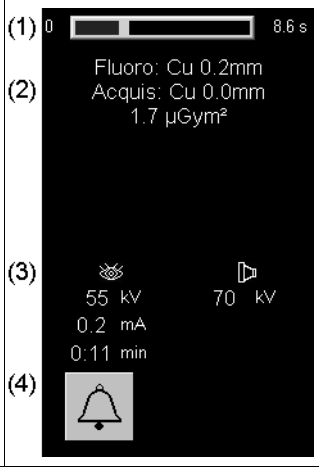
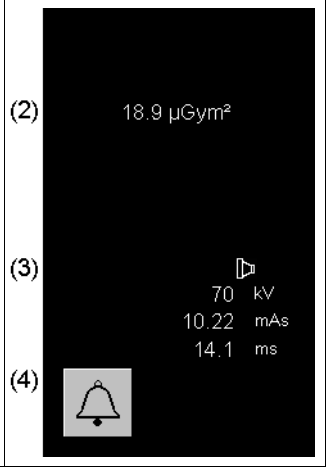
(3) Images in current series

(4) Free space in study / on disk

(5) Acquisition mode and frame rates for acquisition and fluoroscopy

(6) Selected organ program, fluoro mode and I.I. symbol with zoom stage

Bottom right On the bottom right-hand side, the following system information is displayed (example):[1]

Prior to fluoroscopy/ acquisition	During fluoroscopy	After fluoroscopy	After acquisition
			

(1) Fluoroscopy progress bar
- During fluoroscopy: current to maximum fluoroscopy scene length
- After fluoroscopy: current position in fluoroscopy scene

(2) Prefiltration and dose data

(3) Fluoroscopy and acquisition data

(4) Reset fluoroscopy time

Note

A flashing value indicates that the actual value is different from the setting in the organ program.

Text information in images

In the four corners of an image (in **Examination** or **Postprocessing** mode) and on the film sheet the following information is displayed:

[1] not in **Patient** mode

	Left	Right
Top	❑ Patient name (last, first name) ❑ Patient ID ❑ Patient's date of birth ❑ Ward ❑ Request ID ❑ Accession No. ❑ Mark symbol†: solid white circle or none	❑ Institution name ⇨ page 196 ❑ Product name: **FLUOROSPOT** ❑ Referring physician* ❑ Date of acquisition ❑ Time of acquisition
Bottom	Image content data: ❑ **R/L** label or mirror/flip indication Acquisition data: ❑ kV ❑ mAs ❑ Dose value ❑ I.I. format ❑ Image number ⇨ page 24	❑ **R/L** label ❑ Image type† ⇨ page 24 Image settings: ❑ Tomo height or Peri subseries ❑ **F:** Filter (edge enhancement) ❑ **H:** Harmonization‡ ❑ **LM:** landmark (anatomic background)‡ ❑ **C:** Contrast ❑ **B:** Brightness ❑ **WW:**‡ window width (only with automatic contrast) ❑ **X:**/**Y:**‡ pixelshift values

* only on film sheet (configurable)

† not on film sheet

‡ depending on image type (native or subtracted)

Note

You can switch off and on image text by pressing the spacebar.

Image numbering and image types

In the following table you can see the different image types and how they will be numbered:

Image number (left)	**Image type** (right)	**Short description**	**Example** for image number
#	*none*	single image	**13** single image no. 13
#		single image of a tomography	
#	*none*	image of a fluoro loop (not stored)	
S#	**SER**	series or DSA series	**S5** series no. 5
S#	**PERI**	Peristepping or Phlebostepping series	S5
S#_#	**SER**	image of a series (not subtracted) series number _ image number	**S5_12** series no. 5, image no. 12
SL#_#	**SER**	image of a stored fluoro loop series number _ image number	**SL6_13** stored fluoro loop no. 6, image no. 13
S#_#-#	**DSA**	image of a DSA series (subtracted) series number _ image number - mask number	**S5_12-4** series no. 5, image no. 12 current mask is image no. 4
none	**OPAC**	max./min. opacification image (not stored)	-
PO_S#	*none*	stored max./min. opacification image PO (for peak opacification) series number	**PO_S5** peak opacification image of series no. 5
none	**SUM**	averaged image (not stored)	-
SU_S#	*none*	stored averaged image SU (for sum) series number	**SU_S6** averaged image of series no. 6
none	**LIH**	LIH image or fluoro loop (not stored)	-
LIH#	*none*	stored LIH image	**LIH3** 3rd stored LIH image
SL#	*none*	stored fluoro loop	**SL4** 4th stored fluoro loop
SL#_#	*none*	image out of a stored fluoro loop	**SL4_22** 4th stored fluoro loop, image no. 22
none	**REF#**	reference image	**REF6** 6th reference image
SM_#	*none*	**Store Monitor** image or image read from CD	**SM_3** 3rd **Store Monitor** image

Image number (left)	**Image type** (right)	**Short description**	**Example** for image number
TW_#	*none*	stored twinview image	**TW_2** 2nd twinview image
SUB_#	*none*	stored subtraction image	**SUB_1** 1st subtraction image

Function overview and key assignment

On the following pages, a short overview is given of the basic functions of the FLUOROSPOT Compact imaging system.

The function keys (**F1** to **F12** and other keys on the keyboard) are assigned certain functions. Depending on the mode of the imaging system, different functions are assigned to the keys.

General functions

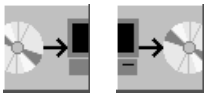
Icon	**Key**	**Short description**
	Enter*	**OK**; accept selected function
	Esc	**Cancel** selected function
left mouse click and **Shift**		Select several objects in sequence
left mouse click and **Ctrl**		Select several objects

* **Enter** always operates the default action. If none is set **Enter** has no function.
Depending on the selected function the default action may be set to **OK** or **Cancel**.

Patient *mode (study lists)*

General functions

Icon	**Key**	**Short description**
-	**F1**	Call up the operator manual*
-	**Ctrl** + **F1**	Call up the operator manual of the system*
-	**F5**	No function

Icon	Key	Short description
Examination	**F6**	Switch to **Examination** mode
Postprocessing	**F7**	Switch to **Postprocessing** mode
Documentation	**F8**	Switch to **Documentation** mode
-	**F10**	No function
+	**F12**	Emergency registration
	-	Read study from CD / Write study to CD-R
	-	Left click: Copy screen contents to reference image monitor Right click: Clear reference image monitor
	-	Retrieve study from archive (only with **Archiving Information** list)
	-	Query and retrieve study from archive (only with **Archiving Information** list)
mouse wheel	→/←	Scroll columns of study list
-	↑	Select previous study
-	↓	Select next study
-	**Home**	Select first entry of study list
-	**End**	Select last entry of study list
	Ctrl A	Select all study list entries
-	**Ctrl R**	Reset width and order of all study list columns
-	**Prt Sc**	Print study list data of selected study or study list of all entries on paper
-	**Pause**	Show status of paper printer

* in **Patient** mode only. The operator manual must have been installed by Siemens Service.

Patient *subtask card*

Icon	Key	Short description
	F2	Call up the input form to create a new study with a new patient
	F3	Add a study to selected patient
	F4	Modify patient data
	-	Delete selected study/studies
	F9	Protect / unprotect study
	-	Apply filter to study list
	-	Get worklist / Update HIS/RIS
-	**F11**	Update HIS/RIS
	-	Update storage commitment status
	-	Close MPPS study

Settings *subtask card*

Icon	Key	Short description
	-	Change general settings
	-	Enter/leave service mode
	-	Enable/disable access for remote diagnosis (on service login dialog)

Icon	Key	Short description
		Show status dialog
	-	Display test images and switch to **Postprocessing** mode
	-	Enable **IQ** (image quality) subtask card and switch to **Postprocessing** mode using a selected study
	-	Create a study statistics
	Ctrl F2	Logout*
	-	Call up audit trail dialog*† for saving the audit trail to a CD-R or saving/restoring users and groups to/from a CD-R
	-	User and groups administration*†

* HIPAA

† only available when logged-in as administrator

Examination *mode*

General functions

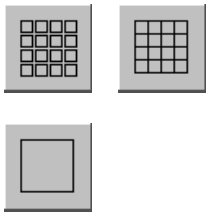
Icon	Key	Short description
-	**F1**	No function
Patient	**F5**	Switch to **Patient** mode
-	**F6**	No function
Postprocessing	**F7**	Switch to **Postprocessing** mode
Documentation	**F8**	Switch to **Documentation** mode
	-	Fluoroscopy parameters
	-	Acquisition parameters
	-	Reset fluoroscopy signal

Icon	Key	Short description
	-	Copy screen contents to reference image monitor
-	**Prt Sc**	Print image on paper

Settings *subtask card*

Icon	Key	Short description
	Alt + **L**	Open the integrated generator control console
	F11	Edit acquisition program
	F12	Edit fluoro program

Review controls

Icon	Key	Short description
	-	Show previous series (of a study)
	-	Show next series (of a study)
	**Return**	Toggle study / series overview, fullscreen display
-	**Home**	Show first image (of a series)
-	**End**	Show last image (of a series)
	Page Up *mouse wheel*	Show previous image (of a series) Select previous mask in remask function
	Page Down *mouse wheel*	Show next image (of a series) Select next mask in remask function

Icon	Key	Short description
	F2	Replay series: start/stop loop
right mouse click	**F3**	Mark /unmark an image
	F4	Store a new or modified image
	-	Store the current fluoro loop
	F9	Store the current image as a reference image
	F10	Recall the current reference image

Control *subtask card*

Icon	Short description
	Alternate between subtracted and native image display
	Enable change mask
	Selects/deselect ROADMAP
	Preselect label R on the left side of the image
	Preselect label L on the right side of the image
	Store the current fluoro image
	Change frame rate before or during series acquisition

Icon	Short description
	Switch to next lower fluoro mode
	Switch to next higher fluoro mode

Postprocessing *mode*

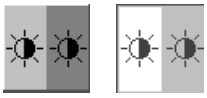
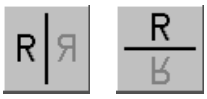
Review controls on page 30

General functions

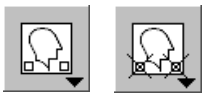
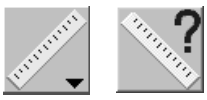
Icon	Key	Short description
-	**F1**	No function
Patient	**F5**	Switch to **Patient** mode
Examination	**F6**	Switch to **Examination** mode
-	**F7**	No function
Documentation	**F8**	Switch to **Documentation** mode
	F11	Restore original state of an image to the state after acquisition
	F12	Restore the state of an image to the state before calling up the current function
	-	Select graphical object(s)
	Del	Remove selected graphical object(s)
-	**Prt Sc**	Print image on paper

Process. *subtask card*

Icon	Key	Short description
	-	Zoom/Unzoom image by a factor of two
	-	Pan: move image

Icon	Key	Short description
	-	Invert/Reinvert grey scales of an image
	-	Shutter: Set or change the electronic shutter
	-	Flip vertically/horizontally
	-	Window: Adjust contrast and brightness
	-	Filter: Adjust edge enhancement and harmonization

Graphics *subtask card*

Icon	Key	Short description
	-	Draw circle(s)
	-	Draw arrow(s)
	-	Set/remove R/L laterality label
	-	Draw/calculate stenosis
	-	Draw distance(s), Calibration / Reset calibration
	-	Draw angle(s)
	-	Text: Enter image text and image comment

DSA *subtask card*

Note

The **DSA** subtask card is only available if a DSA or Roadmap scene is displayed.

Icon	Key	Short description
	-	Enable change mask
	-	Averaging of fill/mask images
	-	Calculate peak opacification image
	-	Toggle between subtracted and native image display
	-	Pixelshift: Shift mask in fractions of pixels
	-	Landmark: Change proportion of subtracted image (anatomical background)
	-	Window: Adjust contrast and brightness
	-	Filter: Adjust edge enhancement
	-	Text: Enter image text and image comment

IQ *subtask card*

Note

The **IQ** subtask card is only displayed if the IQ mode is enabled and/or test images are displayed (see the **Settings** subtask card in **Patient** mode).

Icon	Key	Short description
	-	Draw ROI 20/50
	-	Draw line profile
	-	Draw histogram of a ROI
	Del	Remove selected graphical object(s)

Cursor keys

The four arrow keys on the keyboard have the same effect as moving the mouse depending on the function which is currently active.

Key	↑	↓	←	→
Function with **Window**	brightness +	brightness -	contrast -	contrast +
Function with **Filter**	harmonization +	harmonization -	edge enhancement -	edge enhancement +
Function with **Shutter**	open vertically	close vertically	open horizontally	close horizontally
Function with **Pan**	move up	move down	move left	move right
Function with **Pixelshift**	increase y	decrease y	decrease x	increase x
Function with **Landmark**	-	-	decrease anatomical background	increase anatomical background
Function with **Stenosis**	move stenosis cursor distal	move stenosis cursor proximal	move reference cursor proximal	move reference cursor distal

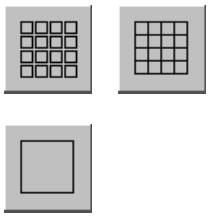
Documentation *mode*

General functions

Icon	Key	Short description
-	**F1**	No function
Patient	**F5**	Switch to **Patient** mode
Examination	**F6**	Switch to **Examination** mode
Postprocessing	**F7**	Switch to **Postprocessing** mode

Icon	Key	Short description
-	**F8**	No function
	F11	Display study report
	-	Create/edit medical report
	-	Return to FLUOROSPOT Compact
	-	Print medical report on paper
	-	Copy screen contents to reference monitor
-	**Prt Sc**	Print displayed images on paper

Series/image selection

Icon	Key	Short description
	**Return**	Toggle study / series overview, fullscreen display
	-	Switch to study overview, if necessary, and select previous series (of the study)
	-	Switch to study overview, if necessary, and select next series (of the study)
	-	Switch to series overview, if necessary, and select previous image (of the selected series)
	-	Switch to series overview, if necessary, and select next image (of the selected series)
-	←	Select image/series to the left
-	→	Select image/series to the right
-	↑	Select the image/series above
-	↓	Select the image/series below

Icon	Key	Short description
-	**Home**	Select first image/series
-	**End**	Select last image/series
-	**Page Up**	Show previous page
-	**Page Down**	Show next page

See also *Review controls* on page 30

Film *subtask card*

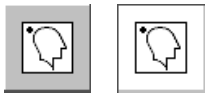
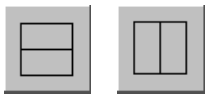
Icon	Key	Short description
	F2	Film marked image(s)
	F4	Preview marked images
	-	Show film status
	-	Create composed images on film sheet (depending on film layout)

Send *subtask card*

Icon	Key	Short description
	F3	Send marked image(s)*
	-	Show send status

* When the system is in the **Documentation** mode, a first press of the **F3** key activates the **Send** subtask card and a second press of the **F3** key activates image sending, if images are marked.
If no images are marked, the second **F3** press is without any effect.

Select *subtask card*

Icon	Key	Short description
	F9	Mark all images for filming/sending
	F10	Unmark all images for filming/sending
	-	Mark/unmark single image for filming/sending
	-	Create twin image horizontal/vertical
	-	Create a subtraction image
	-	Delete image(s)
	-	Apply window/filter/harmonization values to other images
	-	Apply shutter/zoom/pan parameters to other images
-	**F12**	Export image(s) to service folder

Status of the buttons in the function area

You control the program by clicking buttons. Depending on what you were doing previously, the button will be in a certain state:

selectable

The button is shown unpressed with *gray* background and *clear* graphics or text.
– You can select its function.

active

The button appears pressed with *white* background and *clear* graphics or text.
– Its function is active.

dimmed

The button appears unpressed with *gray* background and *grayed out* graphics or text.

– Its function is not available in the current state of the imaging system or it is an option and not licensed.

Tool tips

If you have the mouse pointer on a button, information about this button is displayed. (This is not the case if the button is dimmed.)

Note

You can switch the tool tips on or off.

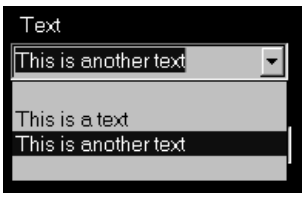
Site information on page 196

Text lists

In several cases when entering text you can use pre-entered texts. These texts are then organized in selection lists.

Using an entry

✧ Click on the arrow button.
– The list drops down.



✧ Click on the required entry.
– The list folds up.
– The selected entry is now in the box.

Adding entries

You can add new entries to a list at any time:

✧ Enter the required text and highlight it with the mouse.

✧ Press the **Ins** key.
– The new entry is added after the selected entry of the list.

Alternatively you can add it at any position in the list:

✧ Click on the arrow button.
– The list drops down.

✧ Move the mouse cursor to the entry after which you want to add the new entry.
– The entry is highlighted.

✧ Enter the required text and highlight it with the mouse.

✧ Press the **Ins** key.
– The new entry is added.

Removing entries

You can also remove entries:

✧ Click on the text to be deleted.

✧ Press the **Del** key.

Selection fields

For some parameters, there are two different types of buttons for changing the parameter in the field displayed:

✧ Click on the arrow button.
– The parameter within the box changes to its next possible value.
– After the last possible value, the first possible value appears again.

✧ Click on the arrow up or arrow down button.
– The parameter within the box is increased or decreased.

Scroll bars

When a list has a lot of entries (e.g. the study list with many study/patient entries) it might be too long to be displayed completely.

In this case the list is displayed with a scroll bar on the bottom and on the right-hand side if necessary. To use a scroll bar:

✧ Click on the arrows left or right.

Or

✧ Click and drag the bar.

Or

✧ Click into the empty space.

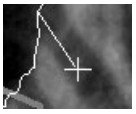
Or

✧ Use the wheel on the mouse.

Mouse pointers

In the following table you will get an overview, which shapes/functions the mouse pointer (cursor) can take:

Mode	Cursor	Function	Icon	Short description
all		Standard	-	Standard cursor in the study list, for example, or for selecting functions.
		Busy	-	The imaging system is busy. - Please wait.

Mode	Cursor	Function	Icon	Short description
Patient		Column width	-	Change column width in the study list.
		CD busy	-	The computer is busy because a CD has been inserted. - Please wait.
Postprocessing		Magnifying glass	-	Magnify a part of the image by a factor of two by pressing the left mouse button.
		Window		Adjust window values with left mouse button pressed.
		Filter		Adjust edge enhancement and harmonization with left mouse button pressed.
		Pan image		Pan image with left mouse button pressed.
		Image text		Input image text after having pressed left mouse button.
		Correct contour		Correct the stenosis border after automatic contour detection
		Select object		Select image texts or graphic elements with left mouse button pressed.
		Move object	-	Move a selected object with left mouse button pressed.
Documentation		Twinview		Mark images for Twinview image with mouse-click.
		Delete		Mark image(s) for deleting with mouse-click.
		Export	-	Mark image(s) for exporting with mouse-click.

Switching on/off

The FLUOROSPOT Compact imaging system is switched on and off together with the acquisition system.

Switching on and starting the system

✧ Press the “ON” button on the console.

The system is powered up.

✧ Wait until the application program is displayed on the monitor.
  – The system automatically runs a self-test when it is switched on.
  – The operating system of the computer is started.
  – The application program is started.
  – If HIPAA is licensed, the login window is displayed.
  – If HIPAA is not licensed, the **Preregistered Patients** list is displayed.

The system is now ready to use.

Caution

If a message is displayed indicating a fault during the self-test after power-on

Risk of radiation without a stored image
Risk of poor image quality

✧ Shut down the system and turn it on again.

If the fault remains:

✧ Shut down the system and call Siemens Service.

Note

If the power has failed, switch off the *entire* system and then switch it on again. The last image might be lost.

If a fault is indicated when the system starts up again, call Siemens Service.

Logging in[1]

HIPAA provides user management assigning each user different rights. This prevents the system, patient data and images from misuse by unauthorized persons.

[1] only available, if HIPAA is licensed

Note

Depending on the rights given to a user by the administrator, not all patients can be seen and some functions of the imaging system may not be available.

If HIPAA is licensed, you must log-in using your login name and password.

Your system administrator must create user accounts and assign groups and privileges to them.

For more information concerning user management, please refer to the *Administration (HIPAA)* on page 205.

Performing an emergency login

If you forgot your password or you don't have an account for this system and must perform an emergency examination, you can perform an emergency login.

✧ Click on **Emergency** in the login window.
– The task cards appear.

Note

When logged-in as the emergency user, it is only possible to perform fluoroscopy and acquisition. Only emergency patients can be seen.

No other functions can be performed and no other patients can be seen.

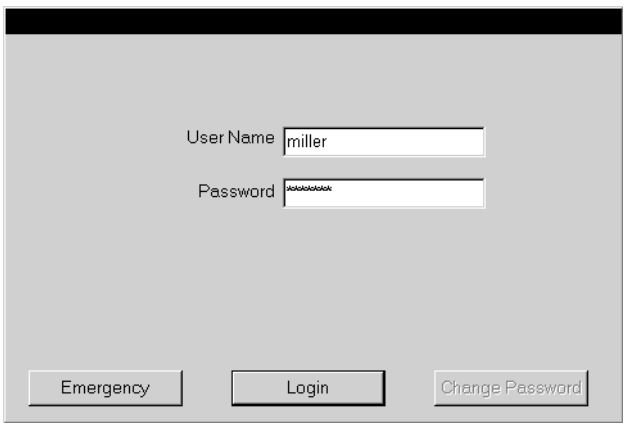
Note

Patients acquired in emergency mode are assigned by the system to *no* group, i.e. *everybody* can see them.

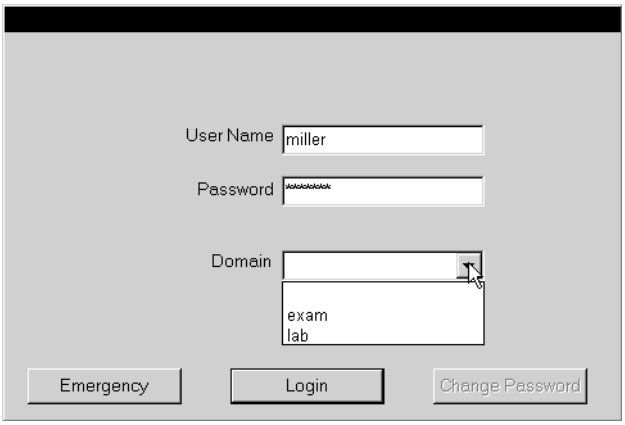
An emergency patient can be assigned to a group via the **Data Entry Dialog**.

Modifying patient data on page 63

Performing a login

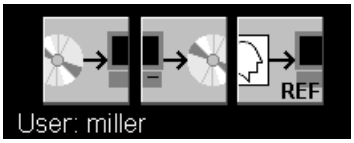


✧ Enter your login name and your password.



✧ Select your domain, if required on your site.

✧ Click on **Login**.
– The task cards appear.



Note

The login name of the user currently logged-in is displayed bottom right.

Screen saver

If no entries are made in the FLUOROSPOT Compact for a configured time, a screen saver is activated.

Deactivation of screen saver

The screen saver is automatically deactivated as soon as one of the following action is performed (not if the **Patient** task card is on top):

❑ unit movement on acquisition system (except table movement)

❑ collimator action

❑ radiation release

❑ infrared remote control action

or on the FLUOROSPOT Compact imaging system:

❑ mouse click[1] or keyboard action

[1] not mouse movement

✧ Press the space bar, for example.
– If HIPAA is not licensed, the imaging system is ready to use again.
– If HIPAA is licensed, the login window is displayed.
Performing a login on page 44

Setting the screen saver time delay

Site information on page 196

Logging off[1]

If another user takes over or when you want to leave the room you should log off for safety reasons.

Note

If HIPAA has not been activated, logoff is done automatically when the system is shut down.

Switching off the system on page 47

✧ Click on this icon on the **Settings** subtask card.

Or

✧ Press the **Ctrl F2** keys on the keyboard.
– The login window is displayed.

Changing the password[2]

For the first login, the system administrator creates a login account with login name and password for you.
Administration (HIPAA) on page 205

If you want to change your login password, you must be logged-in.

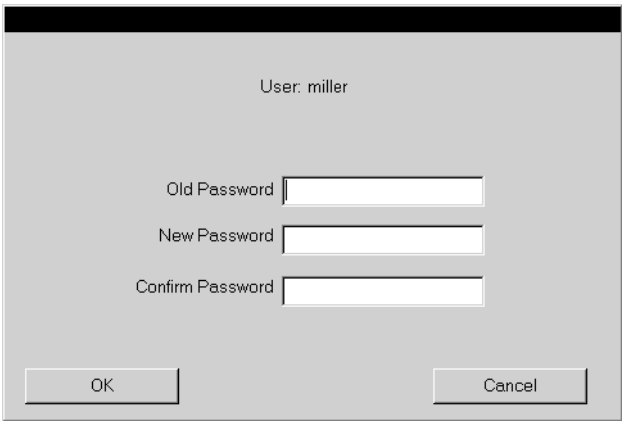
✧ Log in, if you are not logged-in.

✧ Click on this icon on the **Settings** subtask card.
– The login window is displayed again.

✧ Click on **Change Password**.
– The password change dialog is displayed.

[1] only available, if HIPAA is licensed

[2] only available, if HIPAA is licensed



✧ Enter your old password.

Note

The password must have a length of six characters minimum.

Use only letters and figures.

✧ Enter your new password.

✧ Re-enter your new password.

✧ Click on **OK**.

Note

The emergency user has an empty password.

It is not possible to change that.

Switching off the system

Note

Do *not* press the keys **Ctrl**+**Alt**+**Del**.

Pressing this key combination is on your own risk.

If you do so, problems may occur.

✧ Terminate the current examination or review.

Note

Changes that you have made to the images are automatically stored when you go to the next image or to another study.

Shutdown

✧ Press the "OFF" button on the console.
– Active background operations are completed and terminated. This may take some time.
– The application program is terminated.
– The operating system of the computer shuts down (dark monitor).
– The entire system including all connected devices is switched off.

Only, when the monitor is dark, you can switch off using the main switch.

Caution

Switching off the system using the main switch *before* the operating system of the computer has been shut down.

Irreversible damage to the system hard disk may occur

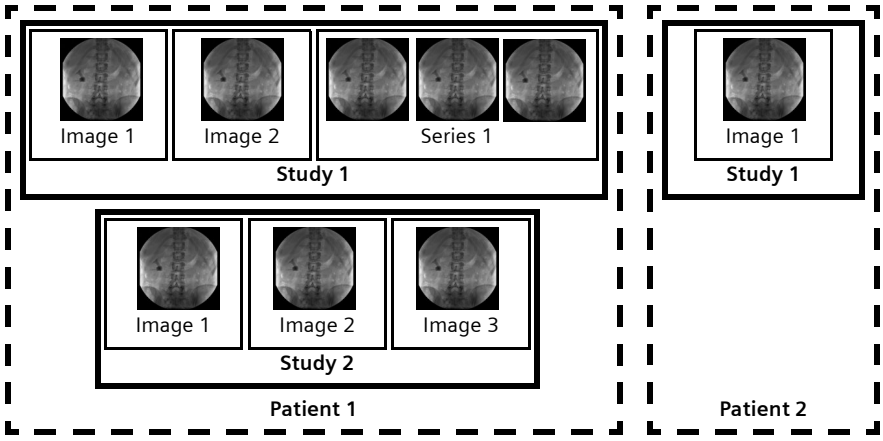
✧ Wait until the imaging system has been shut down (dark monitor).

✧ Switch off the main switch of the x-ray unit (or room), if necessary.

Patient (Study) Administration

DICOM terms

In the DICOM standard, and increasingly also in radiological practice, certain terms are used to describe the assignment of images to examinations of a patient.



Example of an assignment of images to patients

Patient All examination results, i.e. studies, are uniquely assigned to a patient. Unique assignment is usually achieved with the patient's *personal data*, i.e. last name, first name, date of birth, sex and patient identification number.

Study A radiological examination is a *study*. A study can consist of one or more images and/or more than one series.

Procedure step Some radiological information systems (RIS) can divide a study into several *procedure steps*.

Series A *series* consists of several images recorded. For example, an several images acquired in a series are used to display a dynamic process.

Image An *Image* can be an X-ray acquisition or fluoroscopic image (LIH = last image hold).

Note

The FLUOROSPOT Compact digital imaging system "knows" the terms study, procedure step (if supported by the RIS), series and image.

The assignment of a study (or procedure step) to the patient is made in study lists using the personal data of the patient.

Study lists

All patient data with the personal data of a patient, the acquisitions and other examination and image data is stored in *studies* on the hard disk of the imaging system. You can access these data via *study lists* in **Patient** mode:

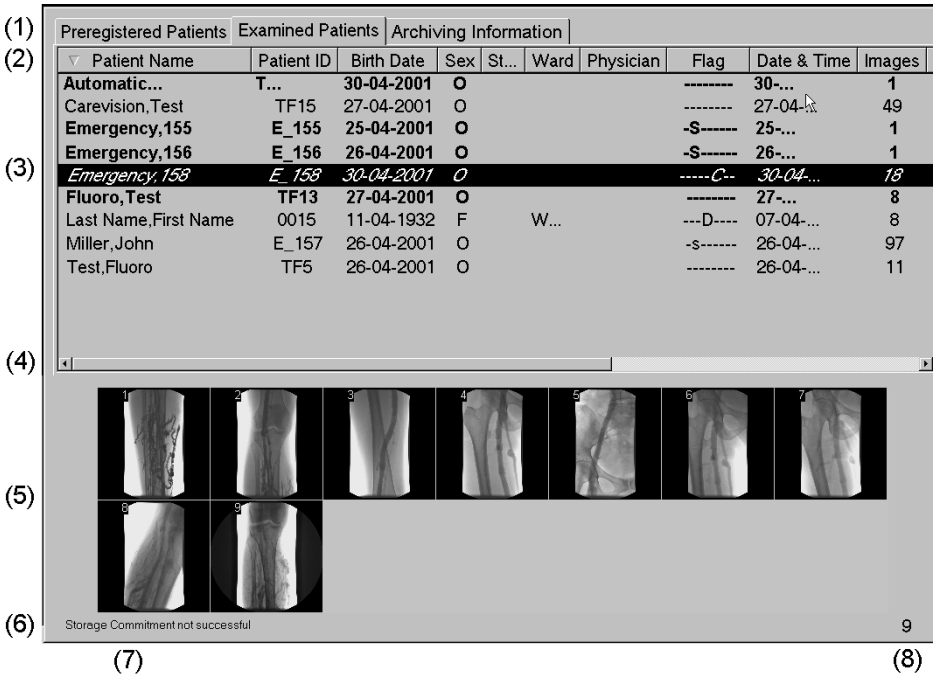
1. You will enter the personal data of the patient and create a new *study* in the **Preregistered Patients** list (work list). Alternatively, patient data (a study or a procedure step) may come in via HIS/RIS (hospital/radiological information system).
2. All acquisitions (images, series) are stored under the selected study entry in the **Examined Patients** list.
3. When an examination is finished you will archive the study data via network, CD-R or hardcopy. You may then delete the image data to regain space for new patients. Data of deleted patients is stored in the **Archiving Information** list.
4. If a patient has to be examined once more, but previous patient data has been deleted, you can look for the old data in the **Archiving Information** list. Depending on archive type (network archive or CD-R), you can select the required studies in the **Query list** or **CD list** and then restore it to the **Examined Patients** list.

Note

All patient data is stored in compliance with the DICOM 3.0 standard.

Description of the study lists

The study lists consist of the following parts:



(1) Tabs of study lists

(2) Headings line

(3) Study entries

(4) Scroll bar

(5) Image preview[1]

(6) Status line

(7) Status message

(8) Number of studies being displayed

Display of study entries

- ❑ "Normal" study entries are displayed in normal letters.
- ❑ MPPS study entries in progress are displayed in **bold** letters.
- ❑ MPPS study entries that were discontinued are displayed in *italic* letters.

Finishing a patient entry - MPPS Close on page 67

Accessing the study lists

The study lists are always displayed on the **Patient** task card.

✧ Click on the **Patient** tab, if necessary.

✧ Click on the tab of the required study list.

[1] Only if the study contains images or series.

See also:
- – *Archiving information* on page 190
- – *Query for patient data* on page 193
- – *Displaying the study list of a CD* on page 183

Printing the study list on a paper printer

✧ Press the **Prt Sc** key.
- – If none or one study is selected the complete study list is sent to the configured paper printer.
- – If more than one study is selected a list of the selected entries are sent to the configured paper printer.

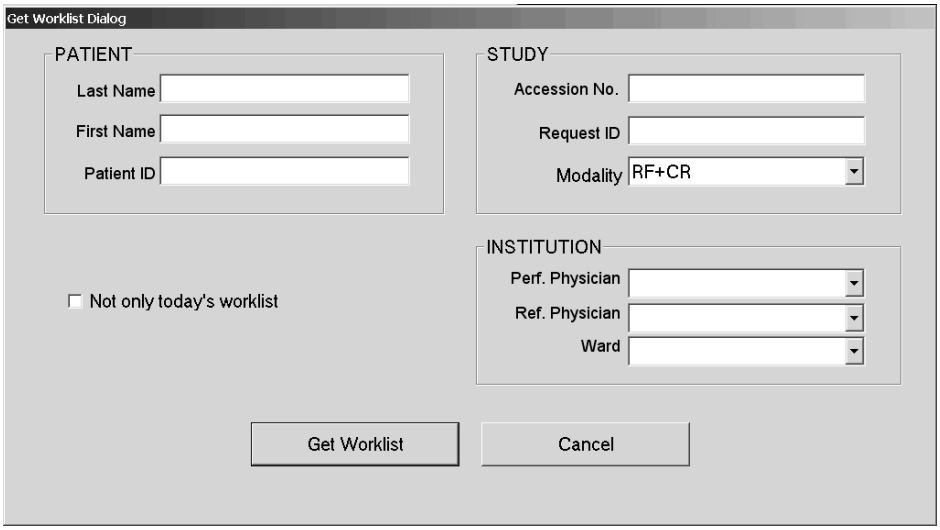
Updating the work list

If your system is connected to an HIS/RIS patients coming in are displayed in the **Preregistered Patients** list.

The **Preregistered Patients** list is updated periodically at an interval which is configurable.
DICOM properties on page 197

However you can update it manually:

✧ Click on this icon on the **Patient** subtask card.
- – An input form appears.



If the patient is already waiting you can enter his name or you can ask the HIS/RIS for special entries only.

Entering data

✧ Enter any known data, if required.

Note

You can use the following wildcards:

- ❑ An asterisk * indicates one or more arbitrary characters
- ❑ A question mark ? indicates one arbitrary character

If nothing is being entered, the unfiltered work list will be displayed.

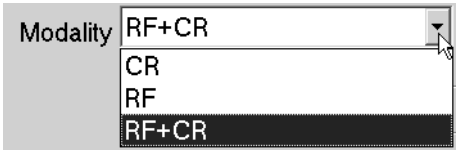
Setting the time range

Normally, only patients of today's planning are displayed.

✧ Click the **Not only today's worklist** check box to display all the patients without restriction of the planned day.

Selecting the modality

✧ Select the required modality/modalities:



- **CR**: Only patients of the CR[1] modality will be considered.
- **RF**: Only patients of the RF[2] modality will be considered.
- **RF+CR**: Patients of both modalities will be considered.
- **XA**: Only patients of the XA[3] modality will be considered.
- **All**: Patients of all modalities will be considered.

Updating the worklist

✧ Click on **Get Worklist**.
- The current worklist entries are removed and replaced by the received worklist.
- For existing studies, the mandatory entries are checked and modified automatically, if the patient ID is identical and the worklist contains updated values.
- If data is inconsistent, an error message is displayed.

Note

The maximum number of received study entries can be configured (1 ... 999) by Siemens Customer Service.

[1] CR = Computer Radiography

[2] RF = Radiography, Fluorography

[3] XA = X-ray, Angio

Data in the study lists

In all study lists, the following study data is displayed:

Header	Description
Patient Name	Last name and first name of the patient
Patient ID	Identification number of the patient
Birth Date	Date of birth of the patient
Sex	Sex of the patient: M = male F = female O = other (e.g. phantom) ? = unknown
Study Description	Organ name
Ward	Name of the ward / clinic / practice
Physician	Name of performing physician
Flag	Status of the study: * = work list study P = printed (on film) S = sent to a network node with DICOM send A = archived to the network archive R = retrieved from network archive D = archived on or retrieved from CD-R* C = closed, confirmed by RIS c = closed, not confirmed by RIS # = protected from unintentional deletion and combinations of any of these ❑ Capital letters: all images of the study were processed completely ❑ Small letters: not all images of the study were processed
Date & Time	Date and time of acquisition of the first image
Images	Number of images stored in the study – A number in brackets indicates the number of marked images. – A plus sign "+" indicates the presence of a medical report.
Accession No.	Identification number of the examination
Request ID	Identification number of the examination request
CD Label	Label of the CD-R on which the study has been archived
Archive Node	Identification of the archive
Comment	Study comment

Header	Description
Group	Group the operator belongs to (HIPAA)
User	User name of operator (HIPAA)

* only set when stored in **Packed** or a **DICOM** format, not set when stored in **TIF** or **AVI** format

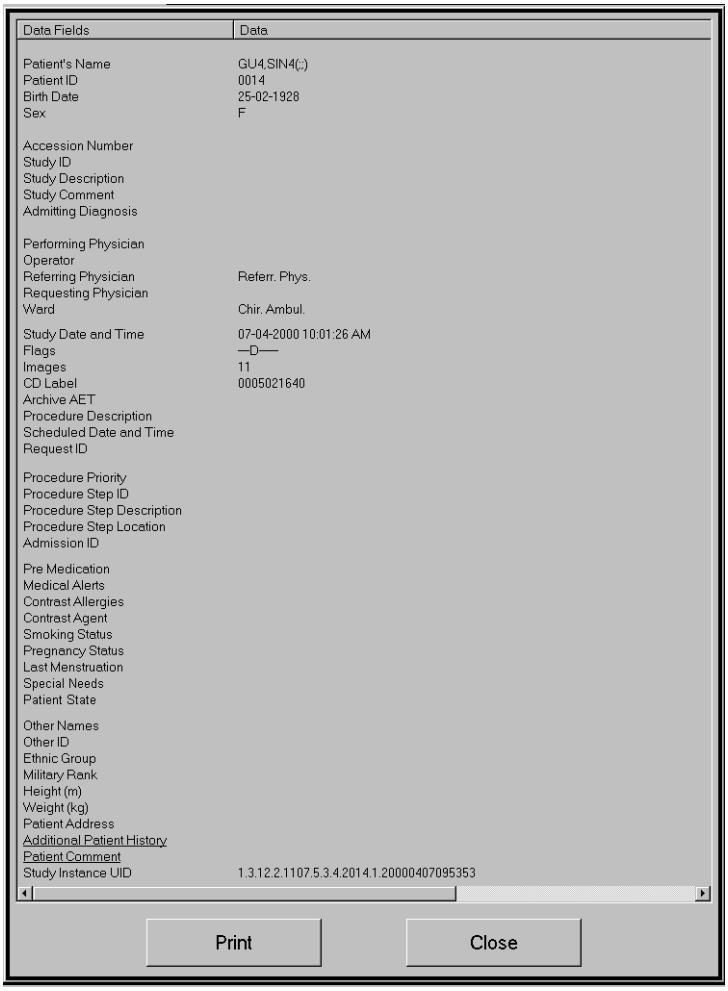
Work list data

Additional data is displayed in the **Preregistered Patients** list (work list).

Displaying the work list data

The study lists contain several entries which cannot be displayed at once. If you want to see them all together:

✧ Click on a study entry with the *right* mouse button.
– The work list data is displayed.



Work list data (example)

Selecting another study entry

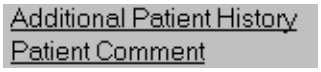
✧ Click on the required study entry with the *right* mouse button.

Or

✧ Press the ↑ or ↓ key on the keyboard to display the data of the previous/next study entry.

Displaying additional information

For some entries (**Additional Patient History**, **Patient Comment** and **Medical Report**) there may not be enough space to display the contents completely.



✧ Click the required (underlined) entry.
– An additional window appears displaying the contents.

Printing the work list data on a paper printer

✧ Click on **Print**.
– The work list data is sent to the configured paper printer.

Closing the window

✧ Click on **Close**.

Or

✧ Click on another study entry with the *left* mouse button.

Displaying images

Images shown in the preview area of the **Examined Patients** list can be displayed without switching to **Postprocessing** or **Documentation** mode.

✧ Click on an image icon with the *right* mouse button and hold.
– The image is displayed as long as the mouse button is depressed.

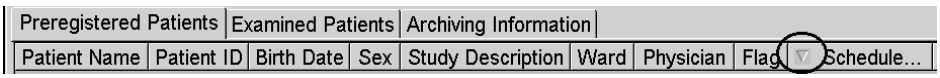
Or

✧ Click on an image icon with the *left* mouse button.
– The image is displayed on the reference image monitor.

Changing the sorting sequence

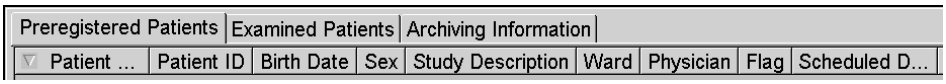
After switching on, the entries in the study list are sorted by date and time.

The sort order is indicated by a triangle.



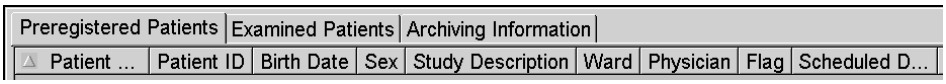
Changing the sorting sequence of study entries

✧ Click in the header of a column you require.
– The study list is then sorted alphanumerically by this column.



Example: Sorting by patient name (descending order)

✧ Click in the header of the same column again.
– The sorting sequence is reversed.



Example: Sorting by patient names (ascending order)

Changing the sorting sequence of columns

It is also possible to rearrange the columns.

✧ Click in the column header, drag and drop it at the required position.
– The columns are shifted according to the new position.

Restoring the original positions of columns

You can restore the default sorting sequence of the columns.

✧ Press the keys **Ctrl** + **R**.
– The original positions (and widths) of all columns are restored.

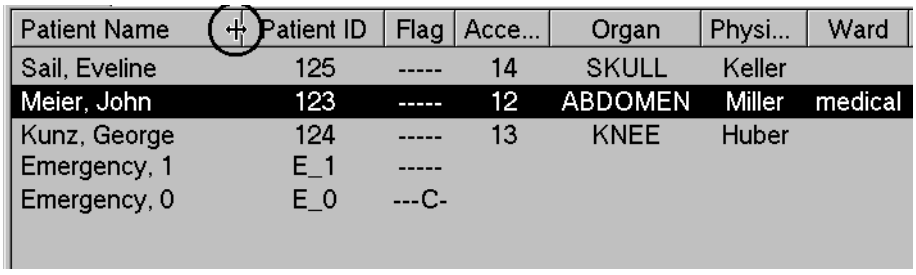
Changing the column width

If an entry, e.g. a patient name, exceeds a certain length, it might not be displayed completely (this is shown by three periods: ...).

To change the width of a column

✧ Move the mouse pointer onto the line in the header separating the columns.
– The mouse pointer changes shape.

✧ Click and drag the column to the width you want.



Example: Dragging the name column to make it wider

Restoring the original widths

If you have made one or more columns so narrow that they disappear, for example, you can resize them to the original widths.

✧ Press the keys **Ctrl** + **R**.
– The original widths (and positions) of all columns are restored.

Adjusting to optimal width

You can set the column width to the width of the longest entry:

✧ Double-click on the column line.
– The optimal width of this column is adjusted.

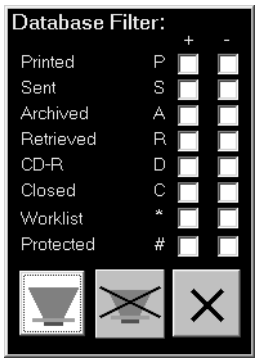
Applying a database filter

It is possible to display specific studies only, using a database filter.

Note

If HIPAA is licensed, only studies available to the user are displayed.

✧ Click on this icon on the **Patient** subtask card.
– A window with the available flags is displayed.



✧ Activate the required check boxes.
– **+** : display study entries if the selected flag is set
– **-** : do not display study entries if the selected flag is set

Flag	Description (study status)
*	Work list patient (HIS/RIS)
P	Printed (on film)
S	Sent to the network with DICOM send
A	Archived to network archive
R	Retrieved from network archive
D	Archived on or retrieved from CD-R
C	Closed (MPPS)
#	Protected from unintentional deletion

See also *Data in the study lists* on page 53

Applying the filter

✧ Click on this icon.
– Studies with flags “+” are displayed.
– Studies with flags “-” are not displayed.
– This icon is displayed instead of the previous icon.

Note

In the bottom right corner of the study list the number of displayed / total number of studies is indicated.

Discarding any filter

✧ Click on this icon.
– All studies are displayed.
– This icon is displayed instead of the previous icon.

Canceling changes

✧ Click on this icon.
– Study list display remains unchanged.

Scrolling the study list

Scrolling general

Scroll bars on page 40

Scrolling alphabetically

✧ Click on any study entry so that the study list has the input focus.

✧ Press the initial letter of the entry you are searching for on the keyboard.
– The study list is moved so that the patients with the initial letter you entered become visible.

Selecting a study (patient)

If you want to use the data of a previously registered patient for an examination, for postprocessing or documentation:

✧ Click on the correct line in a study list.
– The line appears inverted.

Patient Name	Patient ID	Flag	Acce...	Organ	Physi...	Ward
Sail, Eveline	125	-----	14	SKULL	Keller	
Meier, John	123	-----	12	ABDOMEN	Miller	medical
Kunz, George	124	-----	13	KNEE	Huber	
Emergency, 1	E_1	-----				
Emergency, 0	E_0	---C-				

Note

For each study, one entry is assigned to in the study lists.

For each patient, there may exist one or more study entries.

✧ Click on the **Examination**, **Postprocessing** or **Documentation** tab.
– The system switches to **Examination**/**Postprocessing**/**Documentation** mode.

Or

✧ Double-click on the correct line of the study.
– The system switches to **Examination**/**Postprocessing** mode.

You can now apply fluoroscopy or create new acquisitions for this study or post-process images that already exist.

Manual registration

If your system is not connected to an HIS/RIS or in an emergency, you must *register* the patient to be examined.

Note

Registration is necessary, since acquisition is not possible without it.

In case of an emergency, you can perform a “fast registration” and enter the personal data of the patient later.
See also *Performing an emergency login* on page 44

Emergency registration

If you do not have time to enter the personal data of the patient in an emergency or if you do not know the data, you can skip this entry and proceed with the acquisition immediately.

✧ If you are not logged-in, click on **Emergency** in the login window.

✧ Click on this icon on the **Patient** subtask card.
– The input form appears.
Entering patient data on page 60

Emergency

✧ Click on **Emergency**.
– A new “Emergency study” is created in the study list in which the missing required parameters are entered automatically.
A “default patient” is registered with the following data:

Last name: **Emergency**
First name: *sequential number*
Date of birth: *present date entry*
Sex: **Other**
Patient ID: **E_***sequential number*

Note

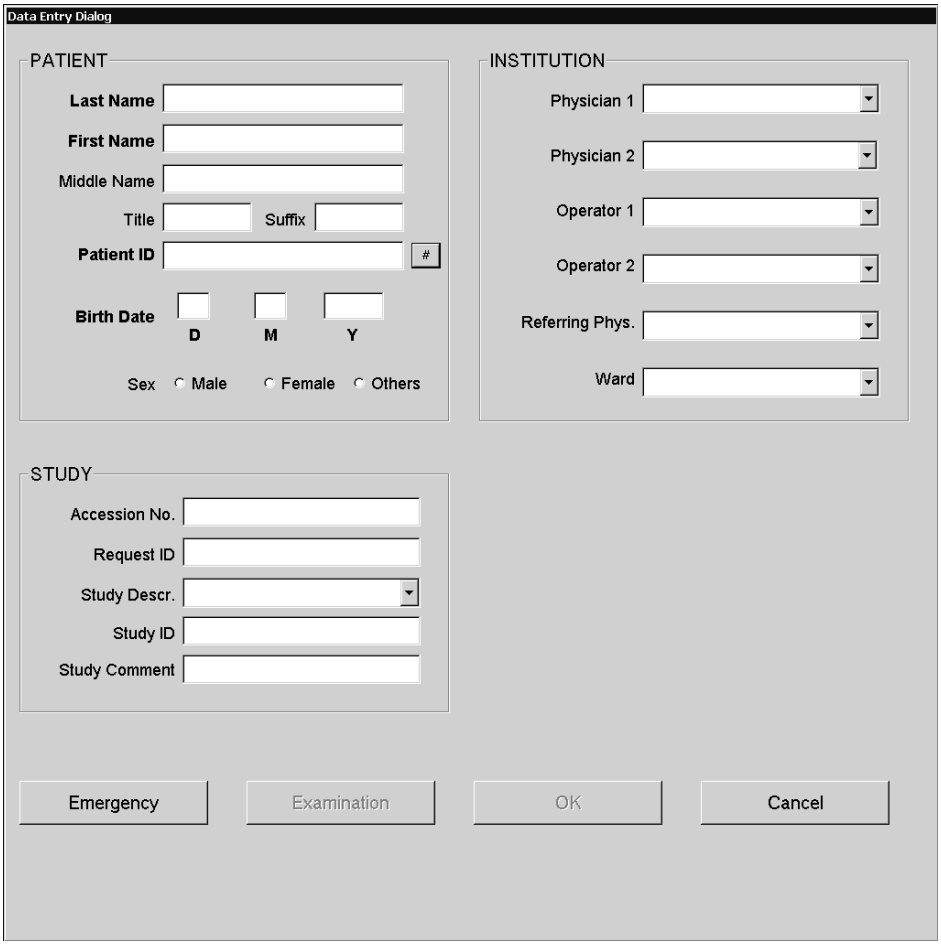
Later on you can enter the missing personal data of the patient.

Modifying patient data on page 63

Entering patient data

For patients that are to be registered manually (not for HIS/RIS patients), you can enter the data as follows:

✧ Click on this icon on the **Patient** subtask card.
– The **Data Entry Dialog** appears.



✧ Enter all the relevant data.

Note

Required entries are displayed in **bold** letters.

PATIENT fields

❑ **Last Name**[1]: Last name of the patient

❑ **First Name**[1]: First name of the patient

[1] Entry required

(**Last Name** and **First Name** together may have up to 64 characters.)

- **Middle Name**: Middle name of the patient
- **Title**: Title of the patient
- **Suffix**: Suffix name of the patient

Note

You can switch off **Middle Name**, **Title** and **Suffix** using the **Display Full Name** setting if you don't require them.

Site information on page 196

- **Patient ID**[1]: Identification number of the patient
  (up to 16 alphanumeric characters)

It is possible to generate the **Patient ID** *automatically* when registering a *new* patient in the **Date Entry Dialog**.

✧ Click on the **#** button next to the **Patient ID** entry field.
  – A new patient ID is generated based on the current date and time.

- **Birth Date**[1]: Date of birth of the patient (day - month - year)

Note

The system does not accept a date of birth in the future.

- If the date entered has a two-digit number for the year and would be in the future, then the system inserts "19" in front of the entry for the year.
- If the date entered has a two-digit number for the year and would be in the past, then the system inserts "20" in front of the entry for the year.

Examples: today's date is 03.09.2003 (DD.MM.YYYY)
  – An entry of "11.3.64" results in "11.03.1964"
  – An entry of "1.10.03" results in "01.10.1903"
  – An entry of "1.1.00" results in "01.01.2000"

✧ In order to avoid errors, beginning with the year 2000 the year should be entered as a *four-digit* number.

Note

You must enter **Last Name**, **First Name**, **Patient ID** and **Birth Date**.

It is possible but unlikely that two patients might have the same name and have been born on the same day. In this case, the identification number of the patient must be different!

✧ Make sure that each patient ID is absolutely *unique*!

- **Sex**: Sex of the patient (male/female/others)

Note

If you do not enter the sex of the patient “unknown” is used instead.

In the study list a blank “ “ is then displayed in the **Sex** column.

STUDY fields

- ❑ **Accession No.**: Identification number of the examination (up to 16 alphanumeric characters)
- ❑ **Request ID**: Identification number of the examination request (up to 16 alphanumeric characters)

Note

Each study is identified by a media unique identification number (the Study Instance UID).

- ❑ **Study Descr.**: Organ to be examined (up to 64 alphanumeric characters)
- ❑ **Study ID**: Identification number of the study (up to 16 alphanumeric characters)
- ❑ **Study comment**: Comment for the study (more than 256 alphanumeric characters).

Note

You can either enter text or select items from a list in some input fields.

You can also add and remove list entries.

Text lists on page 39

INSTITUTION fields

- ❑ **Physician 1**: First *performing* physician (up to 64 alphanumeric characters)
- ❑ **Physician 2**: Second *performing* physician (up to 64 alphanumeric characters)
- ❑ **Operator 1**: First assistant (up to 64 alphanumeric characters)
- ❑ **Operator 2**: Second assistant (up to 64 alphanumeric characters)
- ❑ **Referring Phys.**: Referring physician (up to 64 alphanumeric characters)
- ❑ **Ward**: Name of ward, hospital or practice, for example (up to 64 alphanumeric characters)

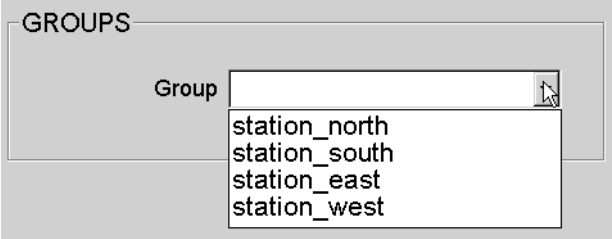
GROUPS field

- ❑ **Group**: FLUOROSPOT Compact user group the patient is assigned to (only available, if HIPAA is licensed)

If your user account belongs to several groups, you can select the group, the patient shall belong to.

Note

Only groups your user account belongs to are displayed.



✧ Select the required group in the **Group** list.

Registering the patient

When you have entered all the data

✧ Click on **OK**.
– A new study is created in the study list with the data you have entered.

Note

If you have made a typing error you can change the data.

Modifying patient data on page 63

Examining the patient immediately

✧ Click on **Examination**.
– The data is passed to the **Examination** task card.

Discarding the data entered

✧ Click on **Cancel**.

Modifying patient data

You can correct or add to the personal data of a patient already registered in the study list (e.g. after emergency registration).

✧ Click on the corresponding entry in the study list.

Patient Name	Patient ID	Flag	Acce...	Organ	Physi...	Ward
Sail, Eveline	125	-----	14	SKULL	Keller	
Meier, John	123	-----	12	ABDOMEN	Miller	medical
Kunz, George	124	-----	13	KNEE	Huber	
Emergency, 1	E_1	-----				
Emergency, 0	E_0	---C-				

Caution

Selecting the wrong study entry

Risk of mixing or switching patient data

✧ *Before* starting fluoroscopy or acquisition, make sure that the patient's name on the monitor agrees with the name of the patient to be examined.

✧ Click on this icon on the **Patient** subtask card.
– The **Data Entry Dialog** appears.

✧ Correct or complete the personal data of the patient.
Entering patient data on page 60

Note

If you change one, more than one, or all of the first five items of data, these entries are changed in all the existing studies of this patient!

For patients delivered by HIS/RIS you can only modify some entries.

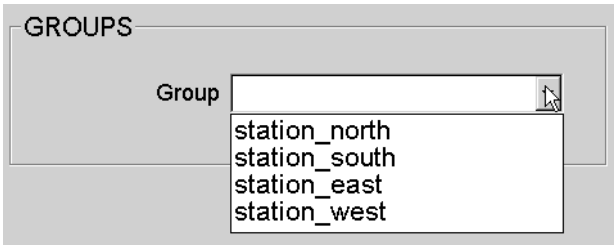
Changing the group

If your user account belongs to several groups, you can change the group, the patient belongs to.

Note

Only groups, your user account belongs to, are displayed.

If you are belonging to several groups, the first group in the list is assigned per default. When you changed the setting, this state remains for all patients until you log off or the imaging system is restarted.



✧ Select the required group in the **Group** list.

Accepting changes

When you have entered/modified all the required data

✧ Click on **OK**.
– The changed data is assigned to the existing study or studies.

Canceling changes

If you want to reject the data entered

✧ Click on **Cancel**.
– The entries are restored to their original values.

Creating another study for a patient already registered

If a new study is created for the same patient (e.g. follow-up examination) you do not need to enter the personal data again.

✧ Click on the corresponding entry in the study list.

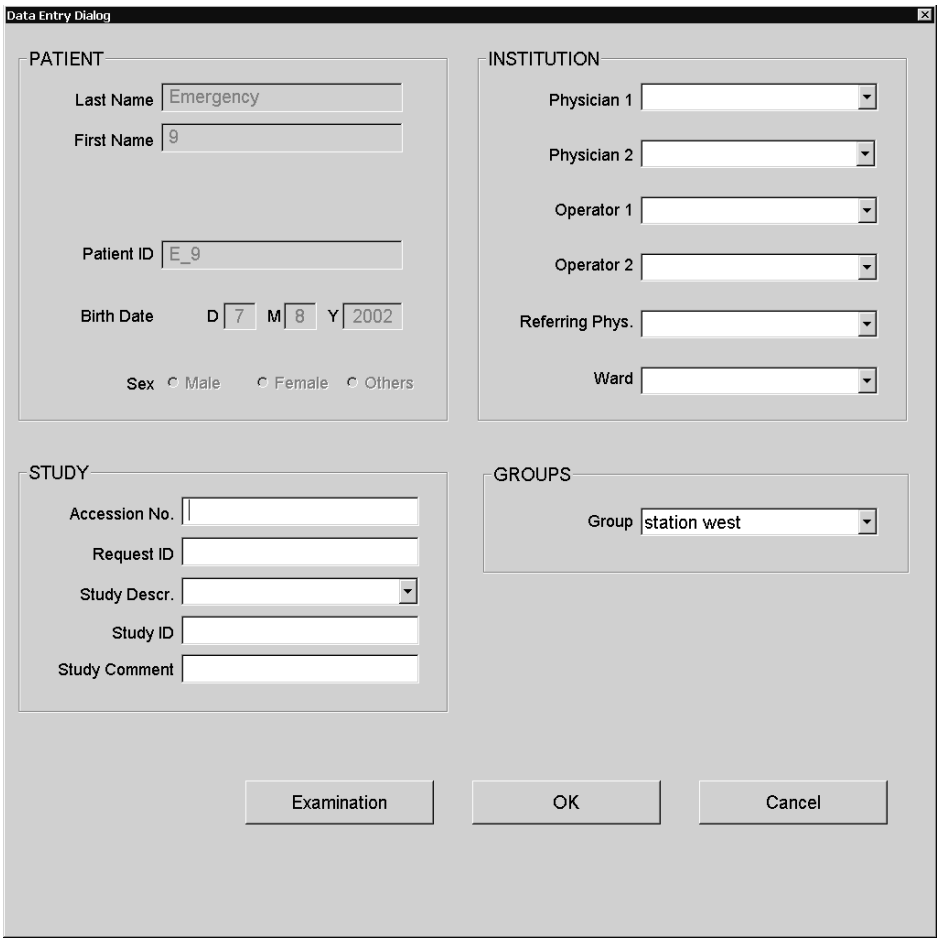
Caution

Selecting the wrong study entry

Risk of mixing or switching patient data

✧ *Before* starting fluoroscopy or acquisition, make sure that the patient's name on the monitor agrees with the name of the patient to be examined.

✧ Click on this icon on the **Patient** subtask card.
– The **Data Entry Dialog** appears.



✧ Enter any additional data you require.
Entering patient data on page 60

Creating the study

✧ Click on **OK**.
– A new study is created for the patient already registered with identical personal data.

Examining the patient immediately

✧ Click on **Examination**.
– The data is passed to the **Examination** task card.

Closing a study

Closing a study manually

When an examination is finished you can close the study.

Note

Closed studies cannot be reopened for acquisition.

✧ Click on the corresponding entry in the study list.

✧ Click on this icon on the **Patient** subtask card.
– If MPPS is not used: a confirmation window appears.
– If MPPS is used: the **MPPS Dialog** appears.

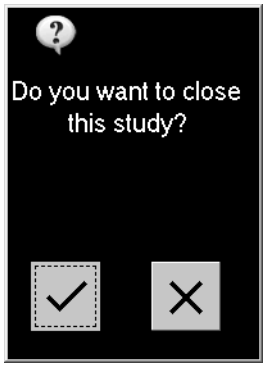
Note

You can configure that the patient close dialog pops up automatically when reentering the **Patient** mode with an open study.

✧ Check the **Auto MPPS Dialog** setting in the **User Settings**.

DICOM properties on page 197

Closing a patient entry if MPPS is not used



If the examination is finished:

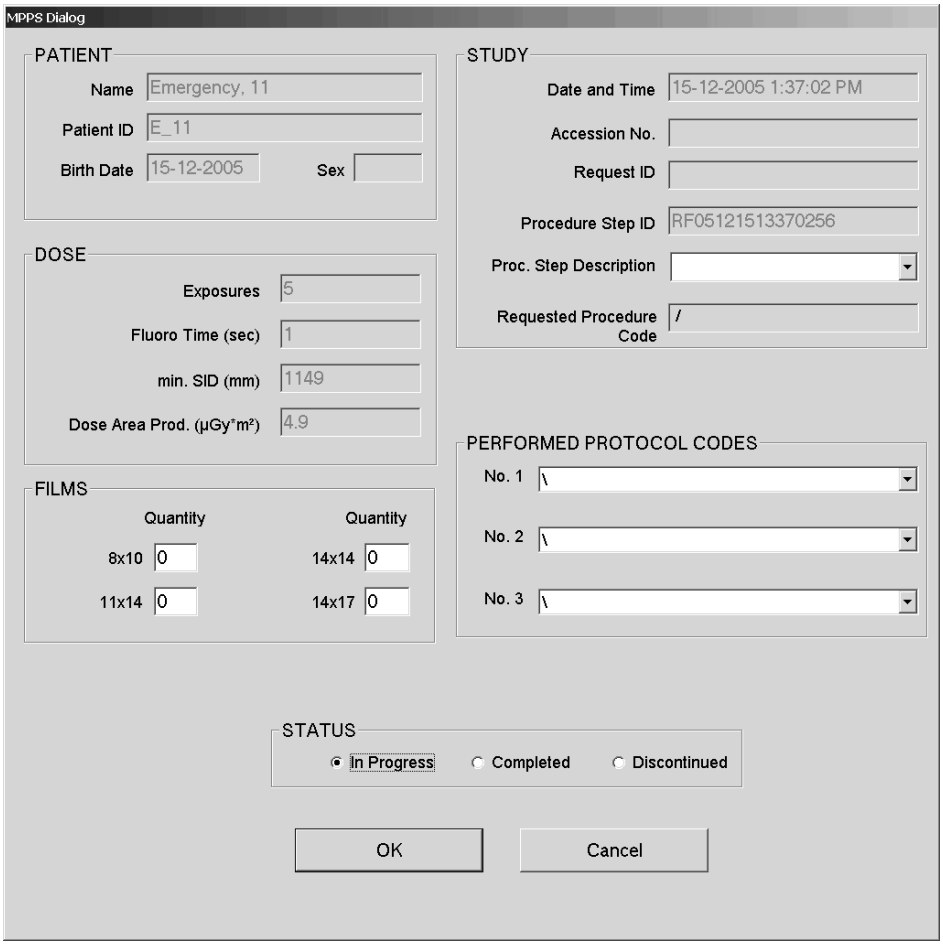
✧ Click on the OK icon.
– No more fluoroscopy or acquisitions are possible on this study.

If you want to continue the examination:

✧ Click on the Cancel icon.
– The study remains open.

Finishing a patient entry - MPPS Close

If your institution uses MPPS (Modality Performed Procedure Step), an examination of a patient has to be confirmed when completed or discontinued.



PATIENT Patient data is displayed.

DOSE Dose data is displayed.
See also *Displaying the study report* on page 173

FILMS ✧ Enter the used film quantities, if necessary.

STUDY Study data is displayed.

✧ Select or enter the performed **Procedure Step** information.
Text lists on page 39

Note

Initially the **Procedure Step** is predefined with the (Requested) **Procedure Description** of work list data.

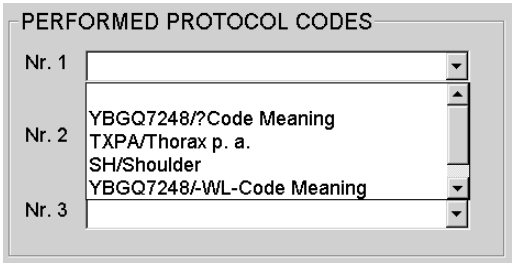
Work list data on page 54

Other study data is displayed only.

PERFORMED PROTOCOL CODES

✧ *Edit Protocol Code* on page 199

✧ Select the performed protocol code information.Performed protocol codes



STATUS

❑ **In Progress**: The examination is still in progress.
(Radiation has been released.)

❑ **Completed**: The examination has been finished.

❑ **Discontinued**: The examination has been stopped, e.g. in case the patient is in a critical state and so his examination cannot be completed.

Note

A study marked as **Completed** or **Discontinued** cannot be continued.

✧ Click the required radio button.

Note

In the **Examined Patients** list the studies will be displayed differently:

❑ Study entries being **In Progress** are displayed in **bold** letters.

❑ Study entries being **Discontinued** are displayed in *italics* letters.

Confirming entries

When you have entered all the required data:

✧ Click on **OK**.
– The data is sent to the MPPS server.

Canceling an entry

If you want to reject the data entered:

✧ Click on **Cancel**.
– Any modified data is discarded.

Updating the study status

✧ Select the required study entry in the **Examined Patients** list.

✧ Click on this icon on the **Patient** subtask card.
– A check is performed in the background.
– A message is displayed in the status line.

Deleting studies

You can delete studies in the **Preregistered Patients** list or studies in the **Examined Patients** list which are unprotected and archived.

You can also delete items in the **Archiving Information** list.

Note

The **Preregistered Patients** list is cleared automatically before an update is performed manually or by the RIS.

Note

Retrieved studies are considered to be archived.

Caution

Deleting studies which are being archived

Risk that images are lost

It is not possible to restore any unarchived image data which has been deleted.

✧ Ensure that the data arrived correctly on the archive media *before* deleting.
The image data must be readable.

Caution

Deleting studies which are being sent to a hardcopy camera

Risk that images are lost on the hardcopy line

It is not possible to restore any unarchived image data which has been deleted.

✧ Have a look on the hardcopy *before* deleting studies.
The image must have been printed well.

✧ Click on this icon on the **Patient** subtask card.
– A dialog box appears.

Selecting the study/studies to be deleted

One study

✧ Click on the study to be deleted in the study list.
– The entry is displayed inverted.

Two or more studies

✧ Click on the first study to be deleted.
– The entry is displayed inverted.

✧ Press the **Ctrl** key and click on the other studies you want to delete in the study list.
– The entries clicked are displayed inverted.

A series of contiguous studies

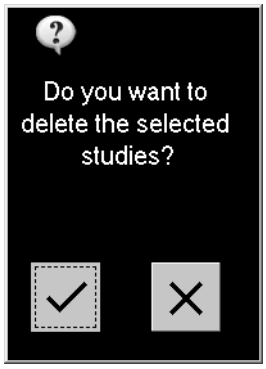
✧ Click on the first study you want to delete.
– The entry is displayed inverted.

✧ Press the **Shift** key and click on the last study you want to delete in the study list.
– This and all the entries in between are displayed inverted.

All studies

✧ Press the keys **Ctrl** + **A**.
– All study entries are displayed inverted.

Deleting the selected items



If you want to delete the study/studies

✧ Click on the OK icon.
– The studies are deleted.

If you are not sure

✧ Click on the Cancel icon.
– The delete operation is canceled.

If there are studies with unarchived images among those selected, a further dialog box is displayed.

Note

If an archive has been configured then the A-flag is used as criteria.

If not, the S-flag is used.

Data in the study lists on page 53

If you want to delete this/these unarchived study/studies:

✧ Click on the OK icon.
– All the selected studies are deleted irrevocably.

If you do not want to delete unarchived studies

✧ Click on the Cancel icon.
– Studies already archived are deleted.
– Unarchived studies are retained.

Note

It is easy to restore archived image data by using the **Archiving Information** list.

Archiving information on page 190

Protecting studies from deletion

You can protect studies from unintentional deletion by marking them with a delete protection mark.

✧ Click on the study to be protected in the study list.
– The entry appears inverted.

✧ Click on this icon on the **Patient** subtask card.
– The symbol "**#**" appears in the flag column of the study list:
The study and all the images of the study[1] are protected from deletion.

Patient Name	Patient ID	Flag	Acce...	Organ	Physi...	Ward
Emergency, 0	E_0	---C-				
Emergency, 1	E_1	-----				
Kunz, George	124	-----	13	KNEE	Huber	
Meier, John	123	----#	12	ABDOMEN	Miller	medical
Sail, Eveline	125	-----	14	SKULL	Keller	

Canceling delete protection

You can release a protected study for deletion again.

✧ Click on the protected study in the study list.
– The entry is displayed inverted.

✧ Click on this icon.
– The symbol "#" disappears from the flag column of the study list:
The study is released for deletion.

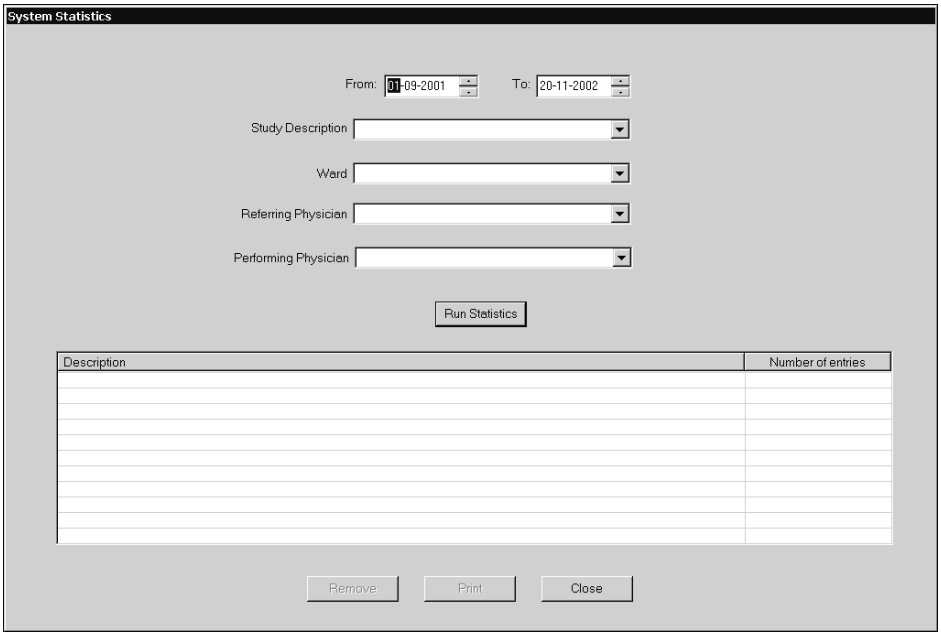
Patient Name	Patient ID	Flag	Acce...	Organ	Physi...	Ward
Emergency, 0	E_0	---C-				
Emergency, 1	E_1	-----				
Kunz, George	124	-----	13	KNEE	Huber	
Meier, John	123	-----	12	ABDOMEN	Miller	medical
Sail, Eveline	125	-----	14	SKULL	Keller	

Study statistics

For statistics purposes, you can create a list of studies fulfilling certain criteria, you define.

✧ Click on this icon on the **Settings** subtask card.
– The input form appears.

[1] also in **Documentation** mode



Entering criteria

Note

You need only enter the criteria you require.

If you enter nothing in a field, all studies of this type will be found.

Note

Only studies available to the user currently logged in will be found.

From - To

You can specify a time range, the examinations were performed, if required.

Note

The **From** date is included, the **To** date is excluded, i.e. to include it, enter one day in addition.

✧ Click the required day, month or year.

✧ Click on the arrow buttons.

Or

✧ Enter the required date.

Study Description

You can specify the examination type, if required.

✧ Enter a study description or select it from the list.

Ward

You can specify the ward where the examinations were performed, if required.

✧ Enter a ward or select it from the list.

Referring Physician

You can specify the referring physician, the examinations were caused by, if required.

✧ Enter a referring physician or select it from the list.

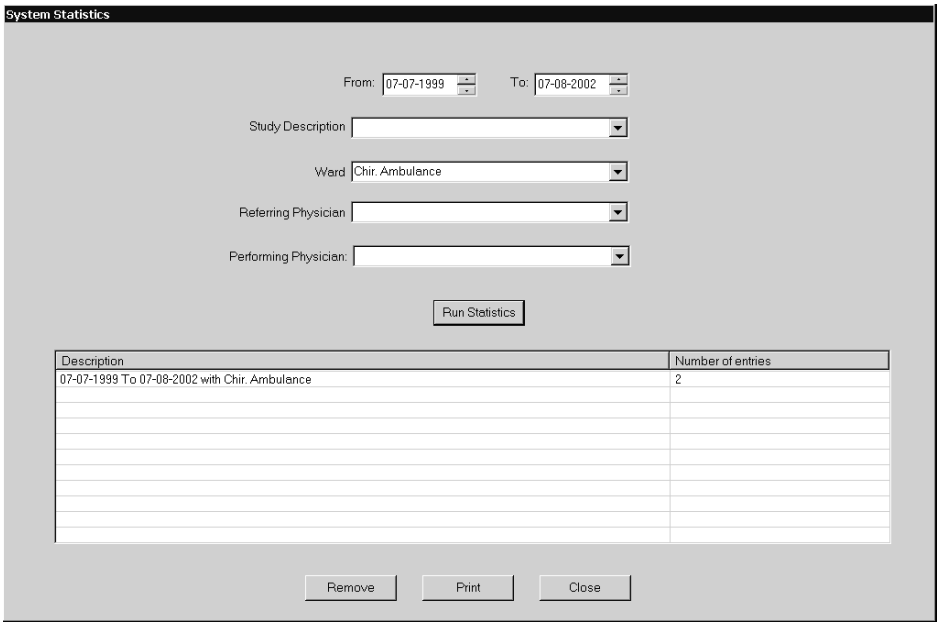
Performing Physician

You can specify the physician who performed the examinations, if required.

✧ Enter a performing physician or select it from the list.

Creating the statistics list

✧ Click on **Run Statistics**.
– Studies matching all the criteria you entered are listed.



Printing the statistics on a paper printer

✧ Click on **Print**.
– The statistics list is sent to the configured paper printer.

Deleting a statistics

✧ Click the statistics item to delete.

✧ Click on **Remove**.

Closing the window

✧ Click on **Close**.

Fluoroscopy / Acquisition

General notes

Generator controls

The selection of fluoroscopy or acquisition programs is done in general on the integrated generator control console.

See the operator manual for the *generator*.

With the **Org +** / **Org -** keys[1] on the infrared remote control you can select the remote organ programs 1 to 7.

Radiation release

You can release fluoroscopy or acquisition in **Examination**, **Postprocessing** or **Documentation** mode.

Note

Fluoroscopy or acquisition is *not* possible in **Patient** mode!

From **Postprocessing** or **Documentation** mode the system switches to **Examination** mode automatically.

Caution

System not ready

If the imaging system is not ready, you cannot perform acquisitions or fluoroscopy.

✧ Pay attention to error messages *before* releasing an acquisition.

Caution

An acquisition or fluoroscopy has been released and no image appears on the monitor of the apparently ready imaging system.

Risk of radiation without an image

✧ *Do not* release any further acquisitions or further fluoroscopy.

✧ Shut down the system and call Siemens Service.

Note

If the image quality has deteriorated noticeably during the acquisition, this can be due to a defect in the system. To check this:

✧ Shut down the system and turn it on again.
– The system performs a self-test when turned on.

✧ Pay attention to error messages during restart.

[1] not with SIRESKOP CX, ICONOS R200

Caution

Footswitch defective or software error

Risk of unwanted radiation exposure

✧ In this case, switch off the system using the on-site emergency SHUTDOWN button.

Background transfers

Image transfers in the background are interrupted during fluoroscopy or acquisition.

Organ programs

You can easily define default settings for fluoroscopy and organ programs on the FLUOROSPOT Compact imaging system.
Setting parameters in organ programs on page 96
Setting parameters for fluoroscopy/roadmap on page 93

Storage and disk space

Image storage

Images taken in **Examination** mode are stored automatically.

The patient entry is moved to the **Examined Patients** list when switching back to **Patient** mode:

❑ If no X-ray acquisition has been performed except fluoroscopy, the last LIH and dose data are automatically stored.

❑ If no digital X-ray acquisition and no fluoroscopy have been performed because one or more cassette acquisitions were taken, a dummy cassette image and dose data are stored.

The patient entry remains in the **Preregistered Patients** list:

❑ If no digital X-ray acquisition and no fluoroscopy have been performed and if no cassette acquisitions were taken.

Note

If a DSA series is acquired and stopped before the mask is set, then the series is stored as a native series.

Please note, that a stopped DSA series (which is stored native) may look slightly different from a 'normal' native series.

Note

It is possible to store a maximum of 2,000 images per study.

Optionally up to 30,000 images can be stored on the hard disk (single images, images from series and images from fluoro loops).

Disk space

If the hard disk of the system only has space for 50 or fewer images, a warning symbol is displayed.

There are two indications of shortage for the free storage capacity for image and examination data:

❑ A *static warning triangle* is displayed if insufficient storage capacity is available for the number of images expected according to the organ program series default. However, acquisitions are possible until "0" images is displayed.

❑ A *flashing warning triangle* is displayed, if the selected organ program allows more images than disk space is available. The "0" images display refers in this case to the current study. However, it is possible to start a new study to acquire further images.

If the part of the hard disk reserved for image data is actually completely occupied, (archived) studies must be deleted to release memory for further acquisitions.

Caution

When disk space exhausted, acquisitions are no longer possible, including cassette acquisitions!

Risk of radiation without a stored image

You can only perform acquisitions if the system has enough storage capacity for at least one image.

The number of images which can still be stored in the system is displayed top right.

✧ Check the available storage capacity *before* performing acquisitions or fluoroscopy.

Note

However, fluoroscopy continues to be possible.

Freeing disk space

If there is not enough storage capacity for your intended examination you can:

✧ Archive studies on CD-R. ⇨ page 186

✧ Archive studies to Hardcopy. ⇨ page 163

✧ Delete the studies you no longer require. ⇨ page 69

Preparing fluoroscopy/acquisition

Before you begin with fluoroscopy or acquisition you have to set the imaging system to **Examination**, **Postprocessing** or **Documentation** mode.

Note

Without study selection no acquisition is possible!

Note

Examination is only possible for studies which are not retrieved from network or CD and which are not being closed.

Note

Patient information of work list studies cannot be changed by the FLUOROSPOT Compact imaging system.

(It can only be changed in the HIS/RIS system.)

✧ Register the patient or select the *correct entry* from the study list.

Caution

Selecting the wrong study entry

Risk of mixing or switching patient data

✧ *Before* starting fluoroscopy or acquisition, make sure that the patient's name on the monitor agrees with the name of the patient to be examined.

✧ Close the study when the examination is finished.

✧ Click on the **Examination** tab.
  – The system switches to acquisition mode.
  – The name of the actual patient is displayed when the study contains no images.

Note

Acquisition is *not* possible in **Patient** mode! From **Postprocessing** or **Documentation** mode the system switches to **Examination** mode automatically.

Note

If the selected study is empty, the screen is displayed black with patient information.

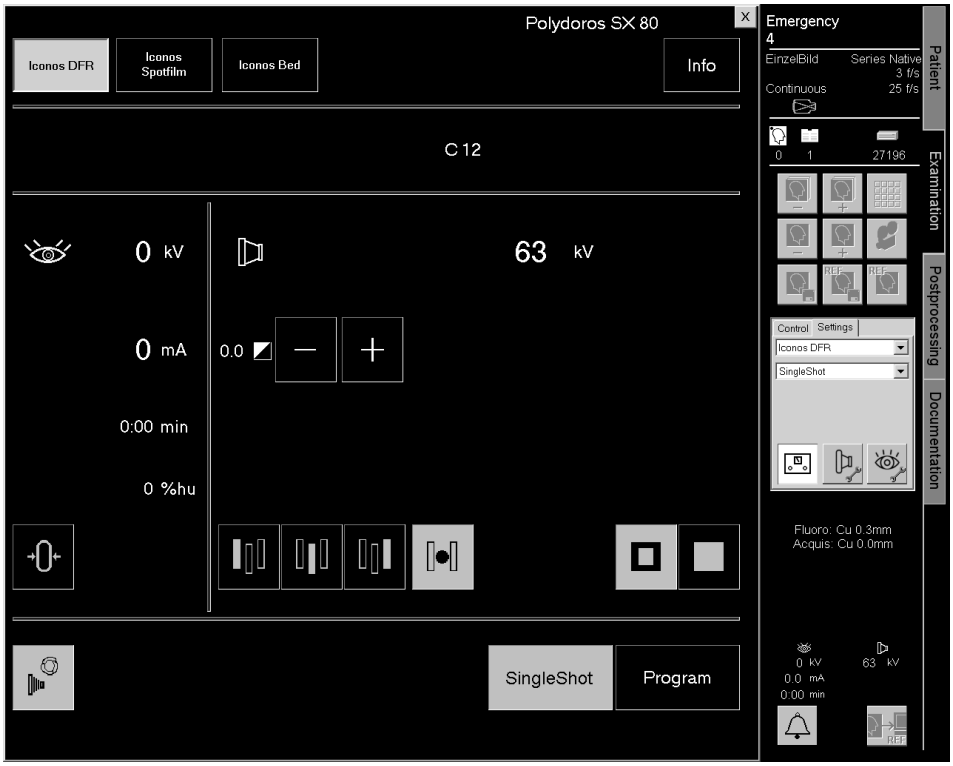
If a study has been selected for which images have already been stored, the last image of the study is displayed.

Note

The most important acquisition and fluoroscopy parameters are displayed on the right above and below the **Control** subtask card.

The integrated generator control console

The generator control console is integrated and can be accessed via the FLUOROSPOT Compact imaging system.



Integrated generator console AXIOM Iconos R200

Opening the integrated generator control console

It can be configured by Siemens Service that the integrated generator console is opened automatically when entering the **Examination** mode.

You can also open it manually in **Patient**, **Examination** and **Postprocessing** mode:

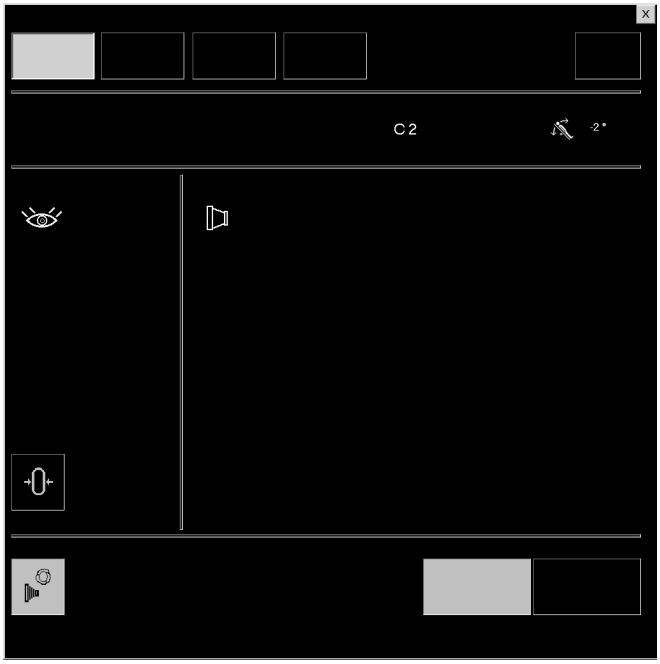
✧ Press the **menu** key (or **Alt** + **L** keys) on the keyboard.

Or

✧ In **Examination** mode, click the **Settings** subtask card, if necessary.

✧ Click on this icon.

The integrated generator control console is displayed.



For more information, please refer to operator manual for the *generator*.

Closing the integrated generator control console

The integrated generator console is automatically closed when radiation is released.

You can close it manually at any time:

✧ Click on this icon.

Or

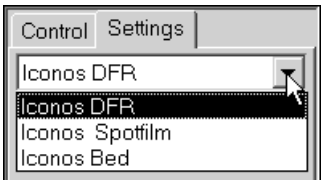
✧ Click on this icon (top right).
– The integrated generator control console is closed.
– The last image is displayed again.

Selecting the workstation and the organ program

You can select the workstation and the organ program directly on the **Settings** subtask card in **Examination** mode without accessing the integrated generator control console.

✧ In **Examination** mode, click the **Settings** subtask card, if necessary.

Selecting the workstation

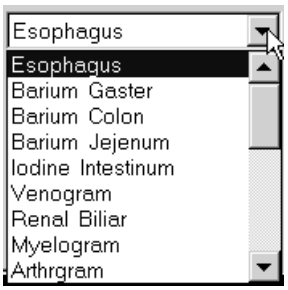


✧ Select the required workstation in the first drop-down list.

Or

✧ Select the workstation on the integrated generator control console.

Selecting the organ program



✧ Select the required organ program in the second drop-down list.

Or

✧ Select the required organ program on the integrated generator control console.

Note

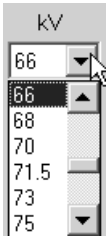
The available organ programs depend on the selected workstation.

Note

The name of the active organ program is displayed on the upper right-hand corner below the name of the patient.

If you have selected a different workstation, the name of the workstation is displayed.

Selecting the tube voltage (•/••/••• techniques)[1]

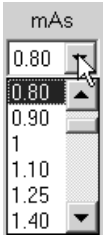


✧ Select the required tube voltage in the **kV** drop-down list.

Or

✧ Select the **kV** on the integrated generator control console.

Selecting the mAs (••/••• techniques)[1]



✧ Select the required dose in the **mAs** drop-down list.

Or

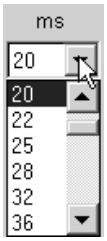
✧ Select the **mAs** on the integrated generator control console.

Selecting the ms (••• technique)[1]

✧ Open the integrated generator control console.

✧ Click the **ms** button.
– The **ms** drop-down list is displayed.

[1] only with cassette



✧ Select the required time in the **ms** drop-down list.

For more information, please refer to the operator manual for the ***generator***.

Fluoroscopy

When fluoroscopy is started, the images are displayed in the image area in full screen mode.

LIH

If you stop fluoroscopy, the last fluoroscopy image remains displayed on the monitor (LIH = last image hold) until a new fluoroscopy or acquisition (pre-contact) is started or another image is recalled.

R/L label

Preselecting R/L label on page 90

Performing fluoroscopy

✧ Press the fluoroscopy switch.
– The current fluoroscopy image appears on the monitor.

– On the right-hand side, a bar graph indicates the current length of the fluoroscopy scene.
– The fluoroscopic parameters are also displayed.

Note

If you press and release the fluoro button too rapidly the message **Err 312/243 DVP not ready for fluoro** is displayed for a short time. This is normal.

Changing the fluoro mode

It is possible to change the fluoro mode during fluoroscopy:

Note

Fluoro + / **Fluoro -** is not possible during radiation with ROADMAP.

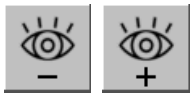
Changing the fluoro mode in this case resets ROADMAP to phase 1.

IR control

✧ Press the **Fluoro -** / **Fluoro +** button on the infrared remote control.

Console

✧ Click on the Fluoro **-**/**+** icons.



The next lower/higher fluoro mode is selected.

Marking a LIH or an image from a fluoro loop

You can mark the last fluoro image (LIH) or any displayed fluoro image out of the current fluoro loop, even during fluoroscopy.
See also *Marking or unmarking images* on page 113

Console

✧ Click in the image area with the *right* mouse button.
– The image is marked on the top left with a white circle.

Note

If **Mark Image** is set in the fluoro program, the LIH is marked automatically.
Setting parameters for fluoroscopy/roadmap on page 93

If an **Autosend Target** is selected in the user settings, any marked image is sent to the set destination automatically.
Changing user settings on page 195

Displaying the next marked image

✧ Press the **Tab** key on the keyboard.
– The next *marked* image is displayed.

Displaying the previous marked image

✧ Press the **Shift** + **Tab** keys on the keyboard.
– The previous *marked* image is displayed.

Storing a LIH or fluoro loop image

You can store the last fluoro image (LIH) or any displayed fluoro image out of the current fluoro loop, even during fluoroscopy.

✧ Display the image you want to store.
Paging images of a series on page 106

IR control

✧ Press the **Store Image** button on the infrared remote control.

Console

✧ Click on this icon.
– The image is stored as the last image of the study.
– If mark image is set in the fluoroscopy program, the stored image is marked.
– If mark image and autosend is set, the stored image is transferred to the autosend destination.

Note

If no image has been acquired when switching to **Patient** mode and no other image has been stored in the current active study, then the displayed LIH is stored automatically.

Fluoro timer

The fluoro time is indicated on the integrated generator console, in the exam protocol and on the film sheet, if any.

Note

The fluoro timer can be configured to the legal requirements:

- ❑ Euro mode: minutes and seconds
  Legally required in the EU
  Example: **5:20 min** i.e. 5 minutes, 20 seconds
- ❑ CFR mode: minutes and tenth of minutes
  Legally required in the US
  Example: **5.1 min** i.e. 5 minutes, 1 tenth minute

Reset of the fluoroscopy signal

If the elapsed fluoroscopy time exceeds the preset value, e.g. max. 5 minutes, a warning signal will sound.[1]

When a new patient is registered, the fluoroscopy time is automatically reset to zero.

The elapsed fluoroscopy time of an examination is automatically recorded in the study report as soon as the patient is completed.

Resetting the warning signal

You can reset the fluoroscopy timer at any time.

Console

✧ Click on this icon.
– The acoustic signal is switched off.
– The fluoroscopy time is reset.

Collimating without radiation - CAREPROFILE

With the CAREPROFILE function, the position of the collimator and the semi-transparent filters are displayed graphically in the last image. In this way you can change the collimation without additional fluoroscopy.

Displaying the CAREPROFILE graphics

The indication comes on during any change of the collimator or filter leave position and any change in the I.I. zoom.

✧ Operate the fluoroscopy switch, if necessary.
– The current fluoroscopy image appears on the monitor.

✧ Operate the collimator or filter joystick.

[1] Can be configured from 1 to 5 minutes by SIEMENS Uptime Service.

✧ Operate a collimator button.
See the operator manual of the *system*.
– The collimator position and size or/and the filter leave position is indicated in the LIH image.
– After a configurable time, the display disappears.
– When triggering fluoroscopy, any existing display is also removed.
– With the next fluoroscopy or acquisition, an electronic shutter automatically covers the collimator blades (set to black).

Examples of CARE graphics, from left to right: rectangular diaphragm, finger filter, iris diaphragm

Note

The duration of the display and the position of the automatic shutter can be configured.

Examination properties on page 200

Positioning without radiation - CAREPOSITION (with CAREPROFILE)

With CAREPOSITION, any move of table or stand is indicated in the last acquired image or LIH.

After selection, the CAREPOSITION function is active and stays active. The status of CAREPOSITION is displayed on the monitor by a “CP” indicator.

You can reposition the patient without applying radiation.

The following movements are indicated.

❑ table longitudinal

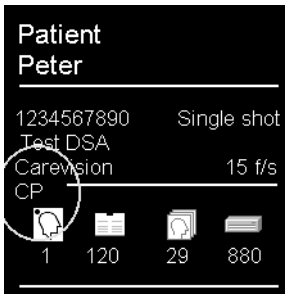
❑ table transversal

❑ central beam longitudinal

Activating CAREPOSITION

✧ Press the **Care position** button on the infrared remote control.
– The CAREPOSITION graphics is displayed: the actual central-line as a cross and the graphical frame of the image area (iris blade or rectangle from collimator).
– The CAREPOSITION graphics is updated whenever the position of the system is changed: table longitudinal, table transverse or x-ray system longitudinal.

The CAREPOSITION graphics is removed after a configurable period of time.



Whenever CAREPOSITION is active, **CP** is indicated top right.

Deactivating CAREPOSITION

✧ Press the **Care position** button on the infrared remote control again.

Fluoro loop

Fluoro loop replay

If you have acquired a fluoro loop you can display it as a “movie”.
Series replay on page 107

Note

You can configure fluoro loops to be started automatically. ⇨ page 195

Note

The acquired fluoro loop is kept in a ring buffer which can keep a maximum of:

❑ 256 images in 1kx1k matrix size (up to 15 f/s) or
512 images in 1kx0.5k matrix size (up to 30 f/s)

❑ 256 images in 1kx1k matrix size (up to 12.5 f/s) or
512 images in 1kx0.5k matrix size (up to 25 f/s).

(depends on CCD camera installed)

The maximum scene length can be calculated as follows:
No. of images / Frame rate

Storing the fluoro loop

✧ Display the image you want to be the beginning of the stored scene.
Paging images of a series on page 106

– On the right-hand side, a bar graph indicates the current length of the fluoroscopy scene to be stored (beginning from the last image).

Note

If fluoroscopy is triggered while system is busy storing a fluoro loop, the system will not store the complete loop. The system will store only images it has time to store, before fluoro is triggered again.

This behavior is intended since priority 'to be ready for fluoro' is higher than the storage of a fluoro loop. Both cannot be done at the same time in order to have best performance in the imaging system.

Note

In ROADMAP phase 2, store fluoro loop is *not* possible, only a LIH can be stored.

In ROADMAP phase 3, store fluoro loop is possible.

IR control

✧ Press the **Store Fluoro** button on the infrared remote control.

Console

✧ Click on this icon.
- If the LIH is displayed the complete loop is stored and then becomes the last series of the study.
- If another image is displayed a fluoro loop series beginning from the current displayed image to the LIH is stored.

Note

All graphic functions are blocked on stored fluoro loops, including ROADMAP.

Stored fluoro loops are also considered as series.

ROADMAP

ROADMAP is a fluoroscopic operating mode with subtracted display.
A mask image is created during fluoroscopy that is used for subtraction for the subsequent fluoroscopy action.

ROADMAP simplifies the positioning of catheters and guide wires by special display of the vessels. Because images are subtracted in this examination, the patient must not move.

The examination is performed in 3 phases:

Phase 1

❑ After you have selected a fluoroscopy program with ROADMAP, a fluoroscopy image is created at the end of phase 1 for use as the mask for subsequent fluoroscopy images.

Phase 2

❑ Switch over to subtracted display is automatic. Contrast medium is now injected to display the vessels.

Phase 3

❑ The vessel image is used as the mask for subsequent subtracted fluoroscopy.

Note

In phase 2, it is possible to store a LIH image but it is not possible to store a fluoro loop.

In phase 3, it is possible to store a LIH and also a fluoro loop. (A stored fluoro loop becomes a DSA series.)

Starting ROADMAP

First phase (native)

You may switch on the ROADMAP when there is sufficient contrast media:

IR control

✧ Press the **Roadmap** button on the infrared remote control.

Console

✧ Click on this icon.

✧ Press the fluoroscopy switch and hold it pressed.
– First you will see a native (normal) fluoroscopic image on the monitor.
– After 2 seconds the mask image is set.
– The second phase begins.

Second phase (contrast medium injection)

✧ Hold the fluoroscopy switch pressed.

✧ Inject contrast medium.
– A subtraction image appears at the monitor.
– The vessels filled with contrast medium are now displayed in the fluoroscopic image.
– If the peak opacification function is selected in the ROADMAP program, the images are displayed with peak opacification.

✧ Let go of the fluoroscopy switch when the examination area is sufficiently filled with contrast medium.
– The last (subtracted) image continues to be displayed after you let go of the fluoroscopy switch (LIH).
– The last image of the second phase is set as the mask for the following fluoroscopy actions.
– The second phase ends when fluoroscopy is switched off.

Third phase (subtraction)

Fluoroscopy can be interrupted as often as desired. The system remains in phase 3 and displays new subtracted images with the ROADMAP technique every time the fluoroscopy switch is pressed.

✧ Press and release the fluoroscopy switch as often you want.
– You will see fluoroscopic images from which the last filled image from phase 2 is subtracted.
– The last image continues to be displayed after you let go of the fluoroscopy switch (LIH).

Note

The peak opacification function is not possible in phase 3.

Switching off ROADMAP

You may switch off the ROADMAP program at any time:

IR control

✧ Press the **Roadmap** button on the infrared remote control.

Console

✧ Click on this icon.

New ROADMAP

If you would like to start a new examination in phase 1 using ROADMAP:

IR control

✧ Press the **Roadmap** button again after its deselection.

Console

✧ Click on this icon again.

Note

Patient movement may impair the ROADMAP subtraction image of the second and third phase. If this happens, deselect ROADMAP and begin a new examination.

Single acquisitions or series

Harmonization

If harmonization is set in the acquisition program, harmonization is performed online.

❑ immediately, for single images

❑ after the last image, for series

Auto Shutter

During acquisition, the shutter position is calculated from the acquired image and overlaid to the next acquired images of the series.

The current position of the collimator blades is used as start position.

For single images, the shutter is overlaid immediately after acquisition.

Note

The autoshutter position can be adjusted closer to the center of the display area by a configurable default (range: 0 ... 200 pixel).

Examination properties on page 200

Series acquisition

For a series, the acquired images appear one after the other on the monitor.

The representative image of the series remains displayed on the monitor after the end of the series.

Acquisition frame rates

You can override the acquisition frame rate before and during an acquisition.

- ❑ *Before* an acquisition, you can select the frame rate.
  After the lowest frame rate the highest frame rate is selected.
  – The selected frame rate stays until another organ program is selected.
- ❑ *During* an acquisition, you can switch from the first to the second or third frame rate defined in the organ program.
  – The selected frame rate stays only for the current series.
  – For the next series, the latest selected frame rate is also used.
  – If you want to start a new series with the frame rate defined in the organ program, select another organ program and then reselect your organ program.

Selecting the organ program

✧ Select the required organ program on the integrated generator control console.
See the operator manual for *the generator*.
Selecting the workstation and the organ program on page 80

Preselecting R/L label

You can define a default orientation label position for the next acquisition.

Note

The preset label is valid *only for the next acquisition*.

If a label is preset in fluoroscopy, it is valid *for all following fluoroscopy* actions. This is intended because fluoroscopy is normally the preparation for acquisition. If used in fluoroscopy, you must disable the label manually.

If a label is preset to one image of a series or fluoro loop, it applies to all the images of this series or fluoro loop.

Warning

Incorrectly placed R/L labels

Risk of incorrect diagnosis, e.g. surgical intervention on the wrong side

The examining physician is responsible for correct R/L labelling.

✧ Make sure that the R/L labels are placed correctly.

✧ If necessary, use lead letters during fluoroscopy/acquisition.

Warning

Image reversal being selected at the system

R or **L** labels *will not be disabled automatically*.

Risk of incorrect diagnosis due to wrong image orientation

✧ Pay attention to correct laterality display when selecting **Image reversal**.

✧ Select/deselect **R** or **L**, label, if necessary.

Preselecting the R label

IR control

✧ Press the **R** button on the infrared remote control.

Console

✧ Click on this icon.

The **R** label will be displayed on the *left* side of the *next* acquired image.

Preselecting the L label

IR control

✧ Press the **L** button on the infrared remote control.

Console

✧ Click on this icon.

The **L** label will be displayed on the *right* side of the *next* acquired image.

Changing the acquisition frame rate

IR control

✧ Press the **F/s** ↓ button on the infrared remote control.

Console

✧ Click on this icon.

The acquisition rate is decreased by one step.

For possible acquisition frame rates please refer to *Imaging system* on page 227

Performing acquisition

You create single or series acquisitions in the same way.

✧ Press the acquisition push-button or the pedal on the footswitch.

The images are automatically stored on the hard disk.

Note

If the hard disk of the system only has space for 50 or fewer images, a warning symbol is displayed.

✧ Delete studies which have already been archived and/or are no longer required.

Deleting studies on page 69.

Note

If **Mark Image** is set in the organ program, the acquired images or series are marked automatically.
Setting parameters in organ programs on page 96

If an **Autosend Target** is selected in the user settings, any marked image is sent to the set destination automatically.
Changing user settings on page 195

Note

If no image has been acquired when switching to **Patient** mode and no other image has been stored in the current active study, then the displayed LIH is stored automatically.

Review You can view the acquisitions or series immediately.
Image display on page 105

Postprocessing You can process the acquisitions or series immediately or create further acquisitions/series.

✧ Click on the **Postprocessing** tab for accessing the postprocessing functions.
Postprocessing on page 114

Transfer *Transferring/Archiving images to DICOM* on page 159

Filming *Transferring images for hardcopy/filming (DICOM Print)* on page 163

PERI/Phlebo Stepping

A PERI Stepping acquisition consists of several sub-series combined to one PERI-series.

Note

Phlebostepping is the PERI stepping function using an other start position and the contrary stepping direction.

Performing PERI Stepping

✧ Select the required PERI Stepping program at the system/generator control console.
See the operator manual for the ***system/generator***.

✧ Press the acquisition switch.
– The monitor displays the acquisition rate for the starting position, and the note PERI.
– The system moves only in fixed steps.
– At each step the position of the measuring field (dominant) is displayed during x-ray preparation.
– At each step a sub-series is acquired.
– The acquired images appear one after the other on the monitor.

Note

The frame rate cannot be changed manually during a PERI sequence manually, each step has a predefined frame rate from the organ program.

For further information for PERI Stepping please refer to the operator manual for the *system*.

Replay

The images are displayed according to the sub-series acquisition of the stepping.

Note

Except for replay of sub-series, the PERI series is treated as one single series.
Series replay on page 107

Postprocessing

The following processing functions are applied to a single sub-series:

❑ Window

❑ Zoom

❑ Pan

❑ Shutter

All other operations are always applied to all sub-series.

Fluoroscopy/roadmap and organ programs

Setting parameters for fluoroscopy/roadmap

As for organ programs, you can also define certain parameters for fluoroscopy and roadmap on the imaging system.

✧ Select the required fluoroscopy mode at the system control console of the acquisition system.

✧ Click on this icon on the **Settings** subtask card in **Examination** mode.
– The menu for defining fluoroscopy parameters is displayed.

Example for fluoroscopy program

✧ Define the parameters.

Parameters for fluoroscopy

Note

Please observe: Depending on your system and the installed options not all parameters are displayed.

Program Name — Fluoroscopy program name / Name of the fluoroscopy curve (display only)

Fluoro Mode — Fluoroscopy mode (display only)
Parameters for organ programs on page 100.

Note

For CAREVISION, a copper filter of 0.2 mm minimum will be selected automatically.

Mark Image — Automatic marking of stored fluoro image Yes/No
(not possible for fluoro loop)
Context of automatic marking and automatic sending on page 103

Dose Rate Level — Dose rate level set (display only)

Window Width — Basic setting of the window width (image contrast) for fluoroscopy
Possible values: 1 ... 1023

Window Center — Basic setting of the window center (image brightness) for fluoroscopy
Possible values: 0 ... 768

Edge Filter (F) — Basic setting for edge enhancement for fluoroscopy
Possible values: 0 ... 100%

Kernel Size — Size of edge enhancement filter kernel
Possible values: 3 ... 49 odd only

Noise Reduction % — Degree of integration in % for noise reduction (moving weighted averaging)
Possible values: 0 ... 100%

Fluoro Filter Auto — Automatic use of a filter Yes/No

Filter Type — Thickness of the copper filter in mm
Possible values: depending on acquisition system

Harmonis. (H)[1] — Basic setting for harmonization (reduction of brightness differences).
Possible values: 0 ... 100%, Default setting: 0%

Harmonis. Kernel[1] — Size of harmonization kernel
- – Kernel larger: larger extended brightness differences are reduced
- – Kernel smaller: smaller extended brightness differences are reduced

Possible values: 47 ... 255 odd only, Default setting: 127

Additional parameters for ROADMAP

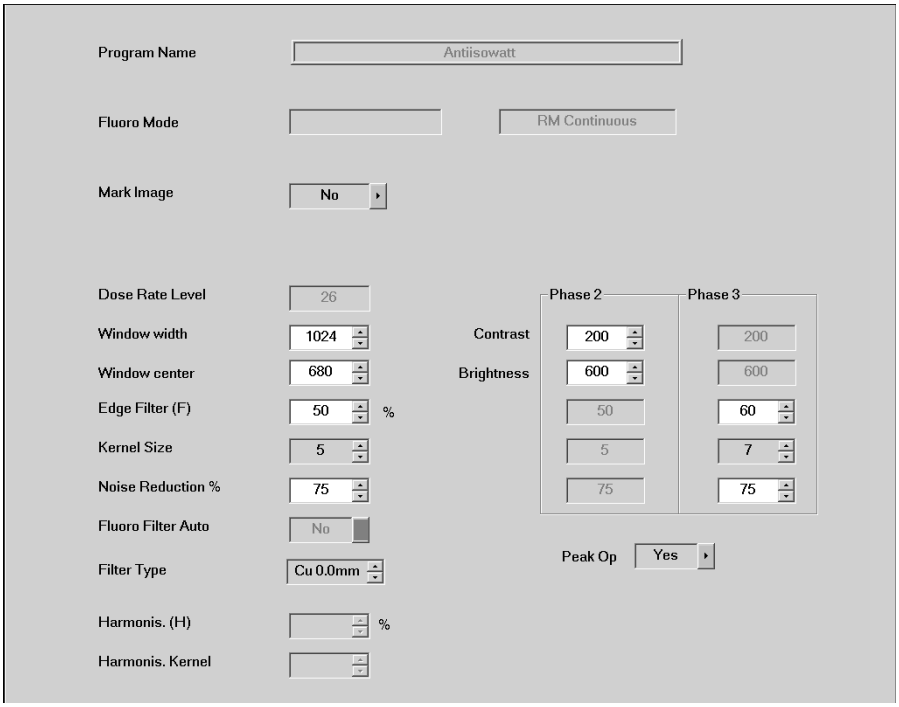
The following parameters are displayed only when a ROADMAP program is selected.

✧ Click on this icon.

Or

✧ Press the **Roadmap** button on the infrared remote control.

[1] not with ROADMAP



Example for ROADMAP program

Phase 2 Parameters for ROADMAP phase 2

Phase 3 Parameters for ROADMAP phase 3

Contrast Basic setting of the image contrast for roadmap
Possible values: 1 ... 1023

Brightness Basic setting of the image brightness for roadmap
Possible values: 0 ... 1023

Peak Opac. Automatic use of peak opacification Yes/No

Note

Dimmed entries have the same values as those in the previous phase.

Setting parameters in organ programs

Your system was supplied from the factory with a number of predefined organ programs. You can adapt them to your requirements.

✧ Select the required organ program on the integrated generator control console.
See the operator manual for the *generator*.
Selecting the workstation and the organ program on page 80

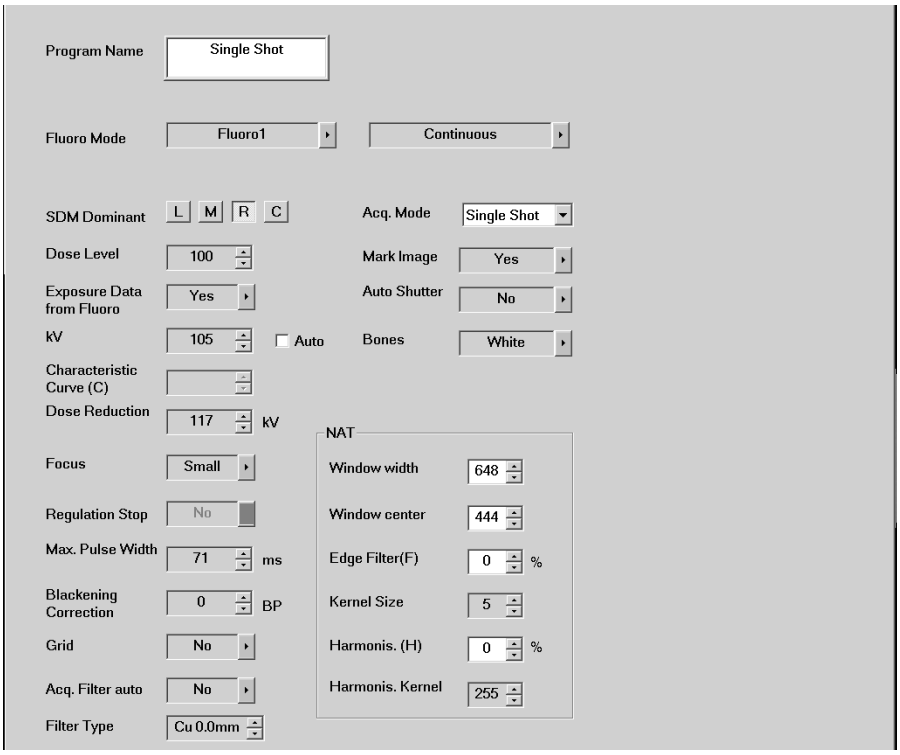
✧ Click on this icon on the **Settings** subtask card in **Examination** mode.
– The menu for editing organ programs is displayed.
– The name of the organ program will appear in the uppermost line.

✧ Change the name of the organ program, if required.

✧ Define the parameters.

Examples for organ program settings

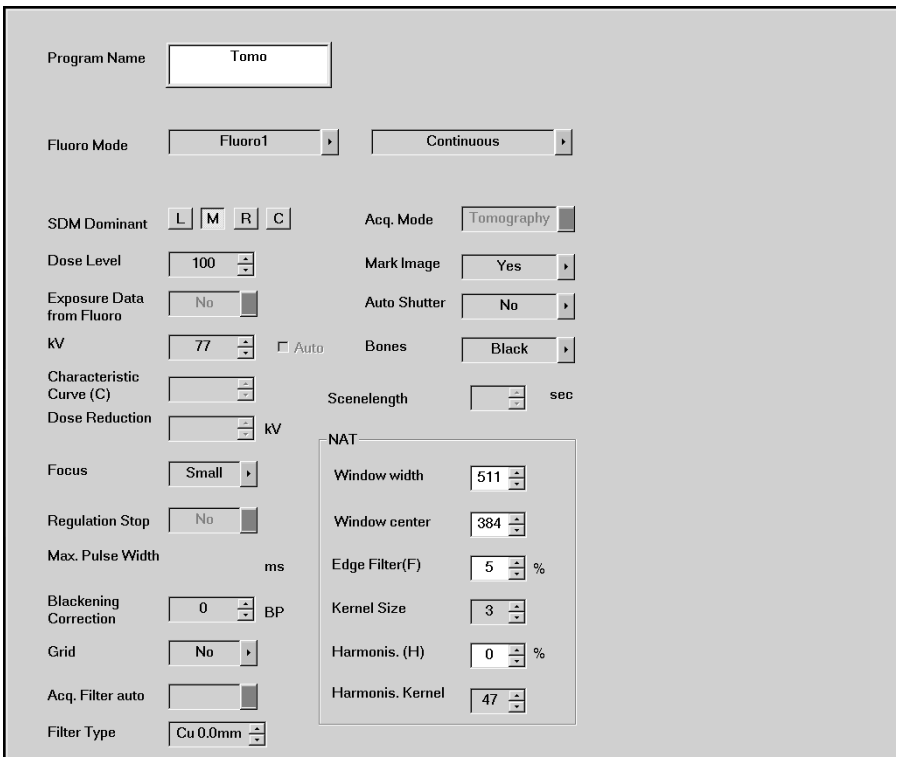
Single shot



Example for acquisition program (single shot)

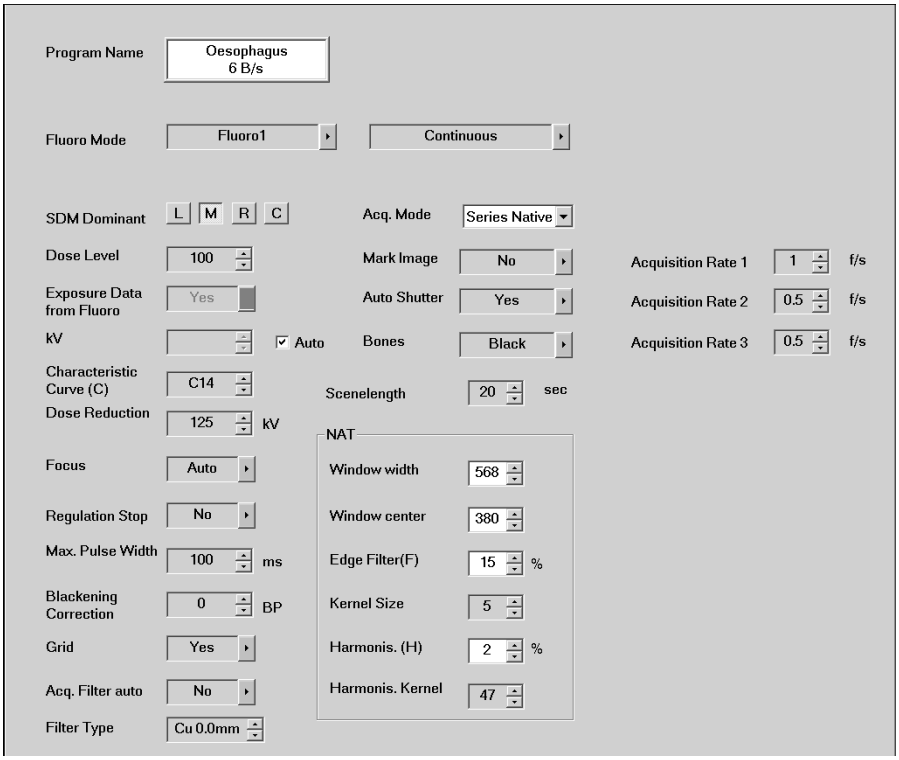
Parameters for organ programs on page 100

Tomography



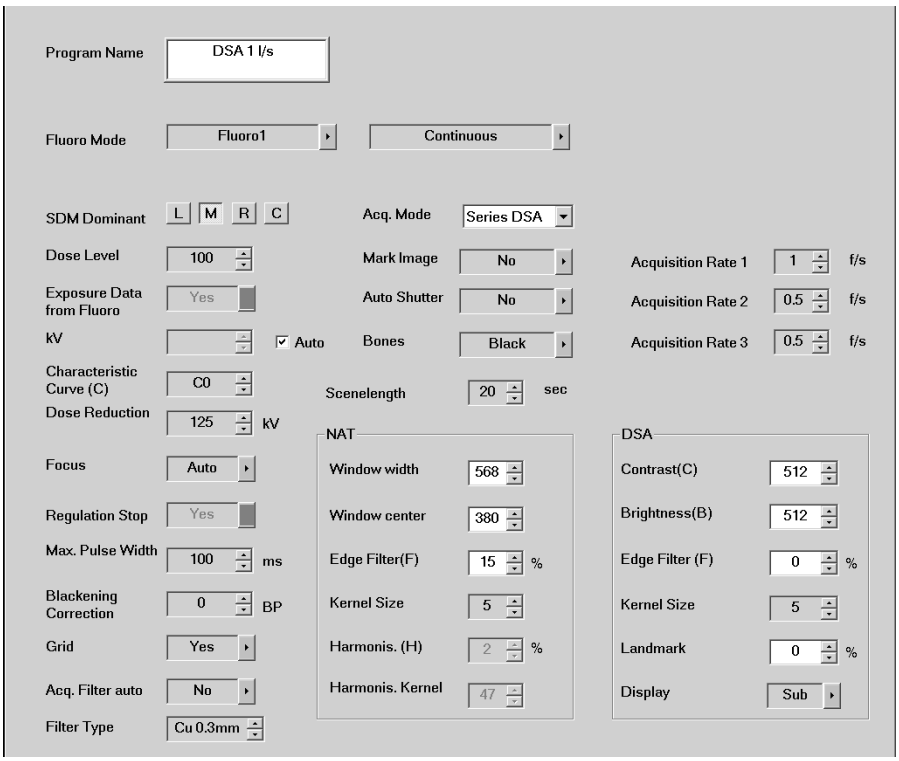
Example for acquisition program (tomography)

Series



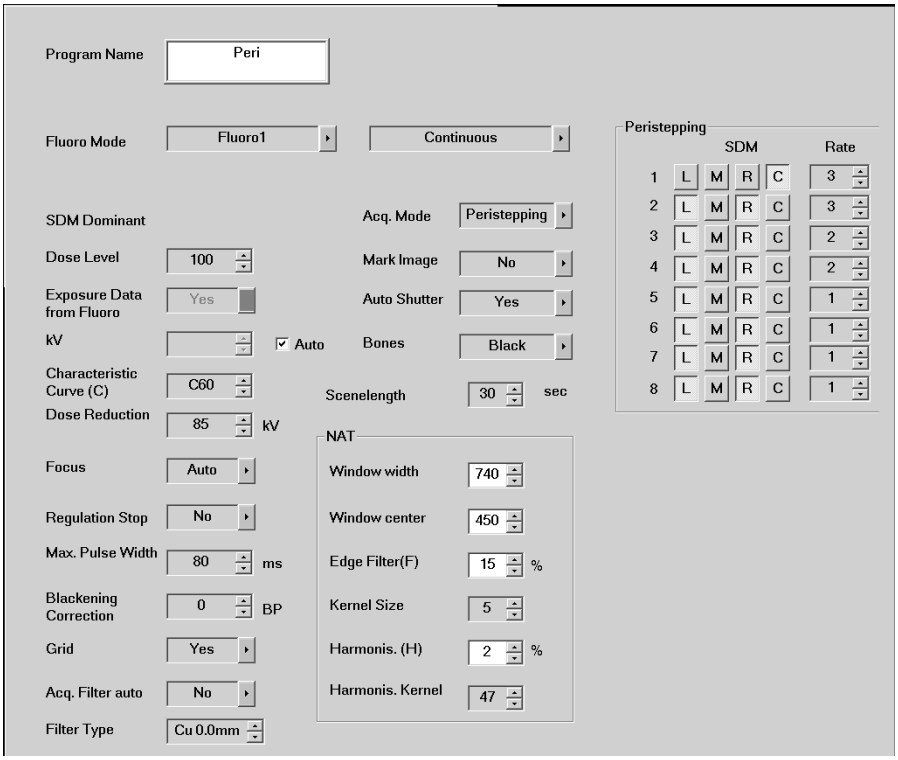
Example for acquisition program (non-subtracted series)

DSA series



Example for acquisition program (subtracted series)

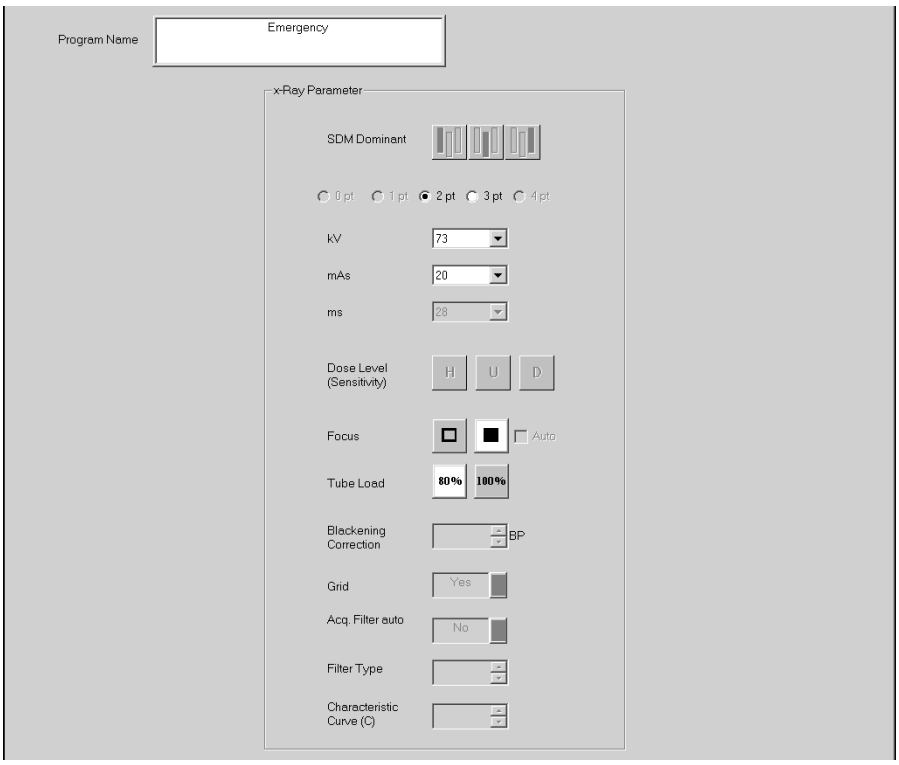
PERI series



Example for acquisition program (peristepping)

Additional parameters for PERI on page 103

Cassette exposure



Example for acquisition program with cassette

Parameters for organ programs

Note

Please observe: Depending on your system and the installed options, not all parameters are displayed.

For possible values please refer to *Imaging system* on page 227

Program Name Acquisition program name

Fluoro Mode Selection of the fluoroscopy mode:

- ❑ Fluoro program
  - – Fluoro1/Fluoro2
  - – Fluoro3
- ❑ Fluoro mode
  - – continuous fluoroscopy
  - – dose reduced SUPERVISION
  - – pulsed fluoroscopy CAREVISION

SDM Dominant Selection of measuring fields (dominants) for organ adapted control of exposure on units with integrated selective dominant measurement (SDM).

The following settings are possible: L = Left, M = Mid, R = Right and combinations of L/M/R; or C = Circular

Dose Level	Relative reference value for dose at the I.I. input behind the grid, programmable in steps. Possible values: 25, 50, 100, 200 for native; 100, 200, 320, 500 for DSA
Exposure Data from Fluoro	Acceptance of exposure data from the previous fluoroscopy: yes/no
kV	Setting in kV
kV Auto	Automatic selection of the tube voltage yes/no
Characteristic Curve (C)	Selection of the characteristic curve in the generator for calculating the exposure value from the previous fluoroscopy values Possible values: C00 ... C99 See also the operator manual for the *generator*.
Dose Reduction kV	With this kV value the automatic generator system reduces the dose to retain the image contrast Possible values: 40 kV to the maximum value defined by the generator.
Focus	Focus setting of the X-ray tube: small, large or auto
Regulation Stop	Switch on/off regulation stop. The kV and mAs parameters are determined after a defined regulation period, independent of the object thickness.
Max. Pulse Width	Maximum duration of the acquisition pulse in ms Value range: 20 ... 1000 ms Maximum values: 1000 ms for **Single**, 400 ms for 0.5; 1 f/s, 350 ms for 2 f/s, 180 ms for 3 f/s, 120 ms for 4 f/s, 70 ms for 6; 8 f/s
Blackening Correction	Compensates for different film densities by iris shutter adjustment with values between -4 and +4 Siemens exposure points (**BP**), step 0.5 "+" means: image becomes brighter (for "bone black" display)
Grid	Motorized use of the grid yes/no
Acq. Filter auto	Automatic use of a filter yes/no
Filter type	Thickness of the copper filter in mm Possible values: depending on acquisition system
Acq. Mode	Selection of acquisition mode: **– Single Shot** **– Series Native** – **Series DSA** – **Peristepping**: PERI Stepping series – **Phlebostepp.**: PERI Stepping series, reverse direction
Mark Image	Automatic marking of stored acquisition images/series Yes/No *Context of automatic marking and automatic sending* on page 103
Auto Shutter	Automatic electronic shuttering corresponding to collimator position yes/no

Bones	Display of bones black or white
Scenelength	Duration of the series can be set in steps from 3 to 80 s (depends on frame rate). After a series duration has elapsed the series is ended by the system.
Acquisition Rate 1	Frame rate in frames per second: 0.5; 1; 2; 3; 4; 6; 8
Acquisition Rate 2	1st stage of frame rate change[1]
Acquisition Rate 3	2nd stage of frame rate change[1]
NAT	Parameters for native (unsubtracted) display
Window Width	Basic setting of the window width (image contrast) for acquisitions Possible values: 1 ... 1023
Window Center	Basic setting of the window center (image brightness) for acquisitions Possible values: 0 ... 768
Edge Filter (F)	Basic setting for edge enhancement Possible values: 0 ... 100%
Kernel Size	Size of edge enhancement filter kernel Possible values: 3 ... 49 odd only
Harmonis. (H)	Basic setting for harmonization (reduction of brightness differences).[2] Possible values: 0 ... 100%, Default setting: 0%
Harmonis. Kernel	Size of harmonization kernel[2] – Kernel larger: larger extended brightness differences are reduced – Kernel smaller: smaller extended brightness differences are reduced Possible values: 3 ... 255 odd only, Default setting: 127

Note

Automatic windowing with harmonization can be set by the Siemens Customer Service.

In this case, window width (WW) with harmonization is additionally displayed in the image (at the position of pixelshift values).

DSA	Parameters for subtracted display
Contrast (C)	Basic setting of image contrast for DSA acquisitions Possible values: 1 ... 1023
Brightness (B)	Basic setting of image brightness for DSA acquisitions Possible values: 0 ... 1023
Landmark	Basic setting for anatomical background in DSA images.[3] Possible values: 0 ... 100%

[1] The scene length set will be maintained.

[2] not with DSA

[3] with DSA only

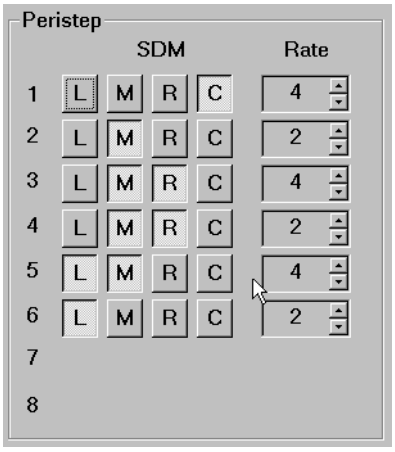
Display

Basic setting for display of DSA series:[3] subtracted/native

Additional parameters for PERI

The following parameters are displayed only when a PERI program is selected.

✧ Select the required PERI Stepping program at the system desk.
See the operator manual for the ***system***.



Example for PERI settings

Note

The number of positions displayed depends on the system: 6 for ICONOS R200

SDM

Selection of measuring fields L = Left, M = Mid, R = Right and combinations of L/M/R; or C = Circular for each stepping position.

✧ Click the required buttons.

Note

The actual used measuring field depends on collimation.

Rate

Frame rate during each stepping position
Possible values: 0.5; 1; 2; 3; 4 f/s

✧ Click the arrow buttons to change the frame rates.

Context of automatic marking and automatic sending

❑ If an **Autosend Target** is set in the **User Settings**,
every marked image is sent to the target set.
Changing user settings on page 195

❑ If **Mark Image** is set in the fluoro or organ program,
every acquired image is marked.
Setting parameters for fluoroscopy/roadmap on page 93
Setting parameters in organ programs on page 96

If *both* is set, *every acquired image is sent* to the autosend target. When large series are acquired, autosend consumes a lot of resources of the imaging system and of the network. Errors may occur.

The only indication of a running transfer process is an icon displayed bottom right (below the tabs).

✧ Consider your workflow and *carefully* set **Mark Image** in the fluoro or organ program.

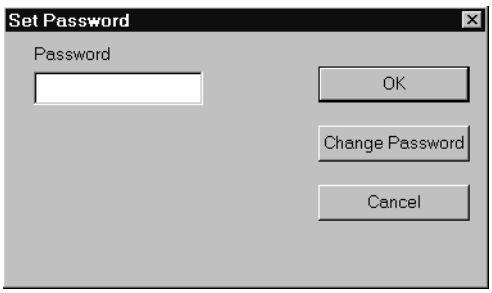
Note

You can quickly mark an image by clicking into the image with the right mouse button.

Closing the parameter window

Adopting changed parameters

✧ Click on **Store**.
– A window for entering the password appears.



✧ Enter the correct password.

✧ Click on **OK** or press the **Return** key.

Rejecting changed parameters

✧ Click on **Close**.

Printing the actual parameters on a paper printer

✧ Click on **Print**.

Image display

In **Examination** or **Postprocessing** mode, images/series are displayed in the full format.

Note

Stored fluoro loops are also considered as series.

See also *Overview of the series/images of a study/series* on page 144.

Displaying images / representatives of series

✧ Double-click on the required study entry in the **Examined Patients** list.

Or

✧ Select the entry in the **Examined Patients** list with a single mouse click.

✧ Click on the **Examination** or **Postprocessing** tab card.
  – The system switches to **Examination**/**Postprocessing** mode.
  – The last acquired or processed image / representative image of the selected study is displayed.

Note

The representative of a series is:

❑ for a native series: the middle image

❑ for a subtracted series: the middle image of the part of the series, which starts after setting the mask

---

Paging representatives of series / single images

Next/previous series (single image)

Console

✧ Click on one of these icons.

Or

✧ Press the **Shift** and **Page Up** / **Page Down** keys on the keyboard.

The representative of the previous/next series is displayed.

First series (single image), first image

✧ Press the **Shift** and **Home** keys on the keyboard.
  – The representative of the first series is displayed.

Last series (single image), last image

✧ Press the **Shift** and **End** keys on the keyboard.
– The representative of the last series is displayed.

Paging images of a series

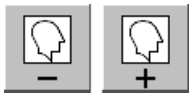
Next/previous image (of a series)

IR control

✧ Press the **Paging** →/← button on the infrared remote control.

Console

✧ Click on one of these icons.

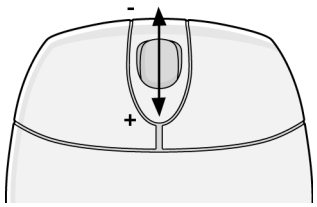


Or

✧ Press the **Page Up** / **Page Down** keys on the keyboard.

The next previous/image is displayed.

Or



✧ Rotate the wheel of the mouse.
– Each rest position one image next/previous is displayed.

Note

When paging through series the first image is displayed again after the last image, or the last after the first, depending on the direction of review.

First image

✧ Press the **Home** key on the keyboard.
– The first image of the series/study is displayed.

Last image

✧ Press the **End** key on the keyboard.
– The last image of the series/study is displayed.

Series replay

Note

You can configure series to be started automatically. ⇨ page 195

Starting replay

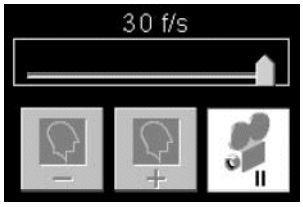
IR control

✧ Press the **Replay Loop** button on the infrared remote control.

Console

✧ Click on this icon.
– The images are displayed dynamically one after the other.

Increasing/decreasing replay speed



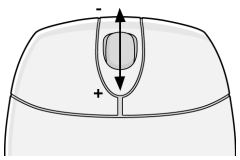
✧ Drag the slider.
– The current replay speed is displayed.

Or

✧ Press the → or ↓ key.
– The replay speed is increased by one step but not more than the acquisition speed.

✧ Press the ← or ↑ key.
– The replay speed is decreased by one step but not less than 0.5 f/s.

Or



✧ Rotate the wheel of the mouse.
– The replay speed is decreased/increased by one step at each position of the wheel.

Single stepping

Paging images of a series on page 106

Stopping replay

IR control

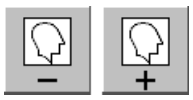
✧ Press the **Replay Loop** button on the infrared remote control again.

Console

✧ Click on this icon.

Replay of PERI Stepping (sub-)series

For a PERI Stepping series, only the images within the current sub-series are displayed. To switch to another sub-series during replay the image plus and image minus function is enabled during replay.



✧ Click on one of these icons to replay the previous/next sub-series.

Storing and retrieving reference images (without reference image monitor)

You can store reference images in a special buffer. These images are kept stored even if the imaging system is switched off. You can store any stored image as a reference image.

See also *Storing and retrieving reference images with reference image monitor* on page 111

Note

You can store a maximum of 16 images per study.

Reference images are marked with “REF#” on the bottom left.

✧ Click on this icon.
– The image currently being displayed is stored as a new reference image.
– If 16 images were stored the oldest image is overwritten.

Now you can acquire a further image or call up an image already stored.

✧ Click on this icon.
– The last stored reference image is displayed again.

Paging reference images

You can scroll through the stored reference images using the scroll buttons.
Paging images of a series on page 106

Changing between images and reference images

✧ Click on this icon.
– The image last displayed is shown on the monitor.

✧ Click on this icon again.
– The reference image last displayed is shown on the monitor.

Displaying the reference image catalog

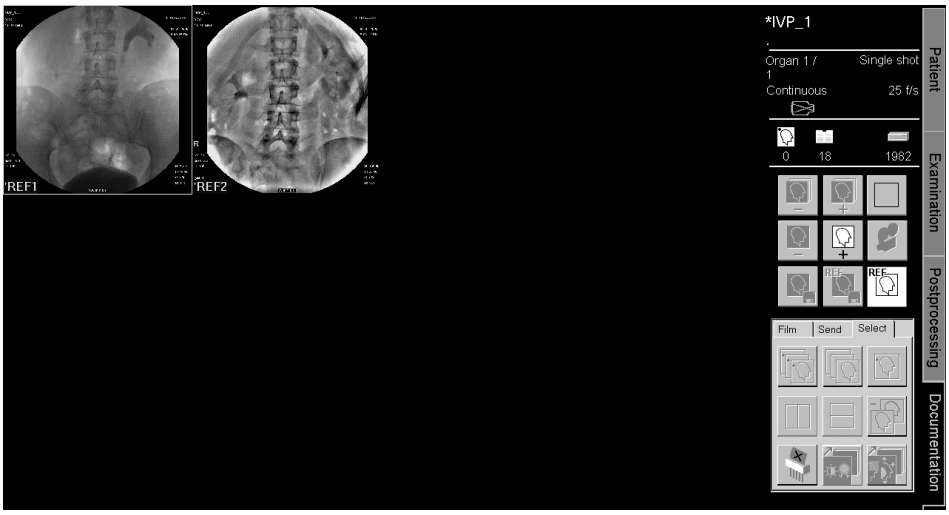
See also *Overview of the series/images of a study/series* on page 144 and *Image display in Documentation mode with reference image monitor* on page 112

✧ Click on this icon, if necessary.
– The last stored reference image is displayed.

✧ Click on this icon.

Or

✧ Click on the **Documentation** tab.
– The reference image catalog (*overview page*) of the study is displayed.



Selecting images in the reference image catalog

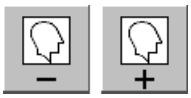
The reference image catalog consists of exactly one page of up to 4x4=16 reference images. Here you can select the requested reference image.

✧ Double-click on the reference image.

IR control

✧ Press the **Paging** →/← button on the infrared remote control.

Console



✧ Click on one of these icons.

Or

✧ Press the →/← key on the keyboard.

The previous/next reference image is selected.

IR control

✧ Press the **Mon. Split** button on the infrared remote control.

Console

✧ Click on this icon or click on the **Postprocessing** (or **Examination**) tab or press the **Return** key on the keyboard.

The reference image is displayed in full size.

Deleting images in the reference image catalog

✧ Click on this icon.

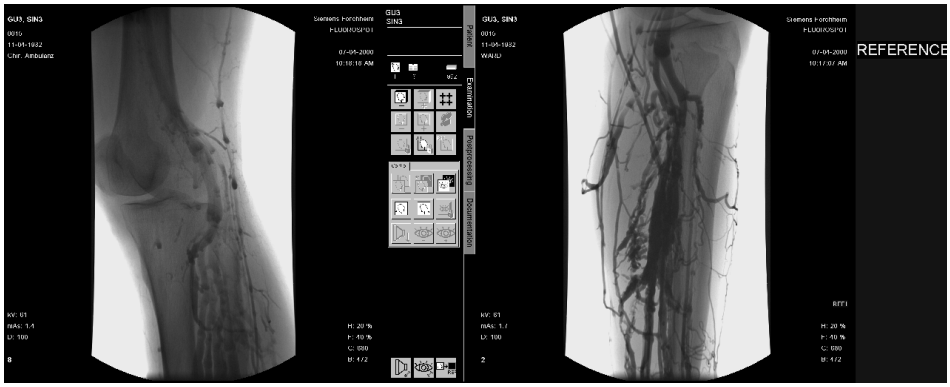
✧ Click on the images you want to delete.
– The reference images are deleted *immediately*.

Reference image monitor

Possible applications of the reference image monitor

Image + Reference

Using the reference image monitor, it is possible to display simultaneously images/series on the life image monitor and reference images on the reference image monitor.



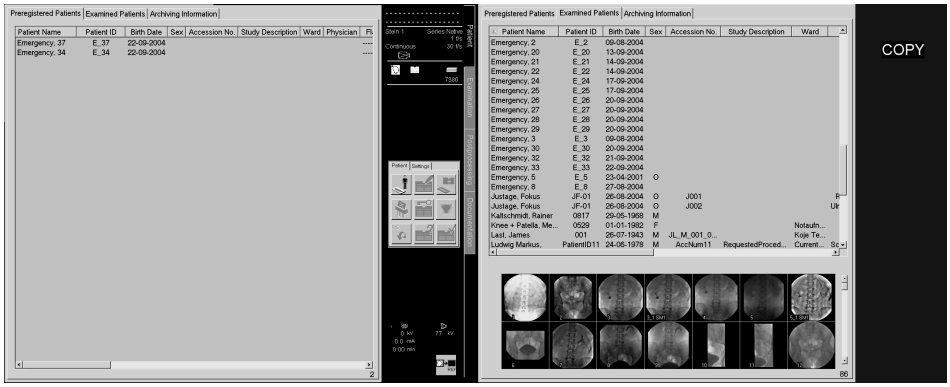
Classical application of the reference image monitor in **Examination** or **Postprocessing** mode

Any + Copy

It is also possible to display any "screen shot" on the reference image monitor.

Example

In **Patient** mode, it is possible to display the patient list or the work list data of the patient on the reference image monitor.

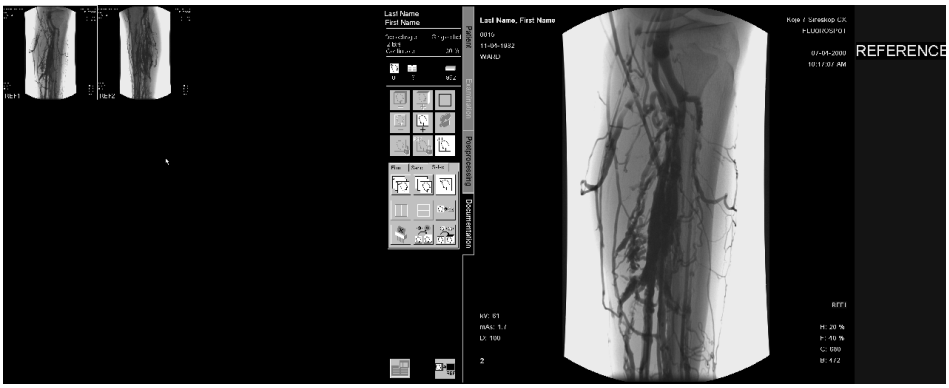


Example for screen copy function in **Patient** mode

Overview + Full size

In **Documentation** mode, the image catalog is displayed on the image monitor and the selected image is displayed in full size on the reference image monitor.

Simultaneous display of image catalog and full size image in **Documentation** mode



Simultaneous display of reference image catalog and full size reference image in **Documentation** mode

Storing and retrieving reference images with reference image monitor

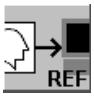
If an reference image monitor has been installed in your system, reference image management is slightly different from a system without reference image monitor. *Storing and retrieving reference images (without reference image monitor)* on page 108

Storing and displaying a reference image

✧ Click on this icon.
– The image currently being displayed on the image monitor is stored as a new reference image *and* displayed on the reference image monitor.
– If 16 images were stored the oldest image is overwritten.

Clearing the reference image monitor

The reference image monitor is cleared automatically when calling another patient. You can also clear the monitor manually:



✧ Click on this icon with the *right* mouse button.
– The reference image monitor gets dark.

Recalling the latest reference image

If the reference image monitor has been cleared or a screen copy stays there you can recall the latest reference image.

✧ Click on this icon.
– The last stored reference image is displayed again.

Paging reference images

You can scroll through the stored reference images using the scroll buttons.
Paging images of a series on page 106

Copying a screen to the reference image monitor

It is possible to copy *any* contents of the image monitor to the reference image monitor.

✧ Click on this icon (with the *left* mouse button).
– The contents of the image monitor is copied to the reference image monitor and stays there until it is replaced by a reference image, by another screen copy, or by an image in **Documentation** mode.

Note

It is not possible to access or modify the contents of the reference image monitor other than replacing it.

Clearing the reference image monitor

✧ Click on this icon with the *right* mouse button.
– The reference image monitor gets dark.

Image display in Documentation mode with reference image monitor

When selecting (reference) images in **Documentation** mode (overview page or series overview), the full size (reference) image is displayed simultaneously on the reference image monitor.

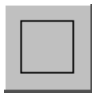
See also *Overview of the series/images of a study/series* on page 144 and *Displaying the reference image catalog* on page 108

✧ Click on the required (reference) image.
– The (reference) image is displayed immediately in full size on the reference image monitor.

Displaying the image on the image monitor

IR control

✧ Press the **Mon. Split** button on the infrared remote control.

Console 

✧ Click on this icon or click on the **Postprocessing** (or **Examination**) tab.

Or

✧ Double-click on the required image.
– The image is displayed in full size on the image monitor.
– If a reference image has been on the reference image monitor before, it will be re-displayed in full size on the reference image monitor.
See also *Displaying an image/series in full size* on page 148

Paper printing of images

You can print every image displayed in **Examination**, **Postprocessing** or **Documentation** mode.

✧ Simply press the **Prt Sc** key on the keyboard.
– The image is sent to the configured paper printer.

Note

The printer can be configured by Siemens Customer Service.

Note

Paper printouts are not suitable for diagnosis.

✧ Only use images on film for diagnostic purpose.

Printer status

Managing print jobs / *Status of paper printer* on page 172

Marking or unmarking images

For DICOM send, filming and CD-R archiving, you can mark images. This can be done in the **Examination**/**Postprocessing** and **Documentation** mode.

✧ Click on the **Examination** or **Postprocessing** tab.

✧ Click in the image area with the *right* mouse button.
– The image is marked on the top left with a white circle.
See also *Marking images or series* on page 153.

To unmark an image:

✧ Click in the image area with the *right* mouse button again.

Note

Automatic marking of images can be set in the fluoro/roadmap and organ programs.
Setting parameters for fluoroscopy/roadmap on page 93
Setting parameters in organ programs on page 96

If an **Autosend Target** is selected in the user settings, any marked image is sent to the set destination automatically.
Changing user settings on page 195

Postprocessing

In **Postprocessing** mode, you can process and annotate your fluoroscopy images or acquisitions with the image processing and graphic functions which are available on subtask cards.

Caution

Wrong image processing

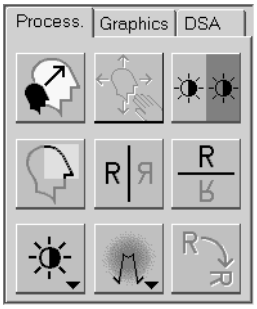
Risk of error in diagnosis

✧ Always check image quality visually before performing a diagnosis.

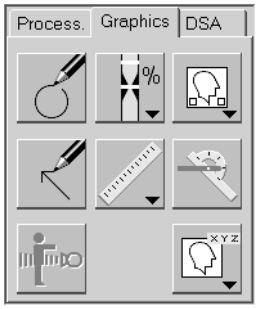
Subtask cards

The following subtask cards are available for postprocessing functions:

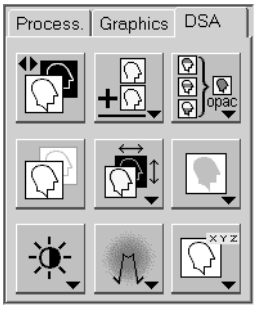
- ❑ **Process.**: Functions for changing the image display
  Processing images on page 116
- ❑ **Graphics**: Functions for annotation and graphic elements
  Image annotation on page 122
  Adding R/L labels on page 124
  Placing graphic elements on page 125
- ❑ **DSA**: Special functions for processing DSA images (only available if a DSA or Roadmap series is loaded)
  DSA postprocessing on page 133
- ❑ **IQ**: Functions for checking the image quality (only available if the IQ functions have been activated)
  Checking image quality(IQ) on page 139



Process. subtask card



Graphics subtask card



DSA subtask card

Graphics on fluoro images

It is not possible in every case to draw graphics on fluoroscopic images or fluoro loops. The following applies:

- ❑ It is possible to draw graphics on a LIH image.

- ❑ If a single fluoroscopic frame has been stored, it is also considered as a LIH. It is possible to draw graphics on it.

- ❑ It is *not* possible to draw graphics on a (temporary) fluoro loop and also not on a stored fluoro loop.

To draw graphics on a defined fluoroscopic frame:

✧ Click on this icon.
– The frame is stored as last image of the study.

✧ Reload the image just being stored and then draw your graphics.

Undoing changes (Home and Undo/Redo)

You can undo any image processings you have made:

Canceling the last change (undo)

✧ Click on this icon.
– The last actions you performed in the selected function are reversed.
– The state of the image before calling up the current function is restored.

Canceling all changes (home)

✧ Click on this icon.
– All changes are reversed.
– The state of the image immediately after acquisition is restored.

Canceling home (redo)

✧ Click on this icon.
– The state of the image before calling up the home function is restored.

Storing changes

An image remains basically in the study as you have postprocessed it. Explicit storage of the changes is not necessary. Changes are stored as soon as you call up another study.

To terminate a function

✧ Click on the icon again.

Or

✧ Click on another icon.

Storing a copy of a modified image as a new image (“Store Monitor”)

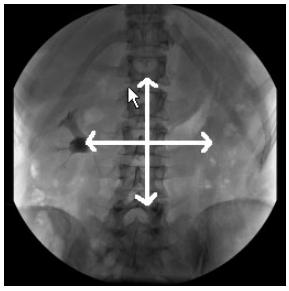
✧ Click on this icon.
– The image currently displayed is saved as a new image and it appears as the last “series” assigned to the study.

New reference image

✧ Click on this icon.
– The image currently being displayed is stored as a new reference image.
Storing and retrieving reference images (without reference image monitor) on page 108

Processing images

You can execute most image processing functions using the mouse.



✧ Select the image processing function you require.

✧ Move the mouse pointer onto the image.

✧ Click and drag the mouse until the image offers the required display.

Note

As an alternative, you can also use the scroll bars for these functions.

Using the magnifying glass function

The magnifying glass function is automatically active when no other function is selected.

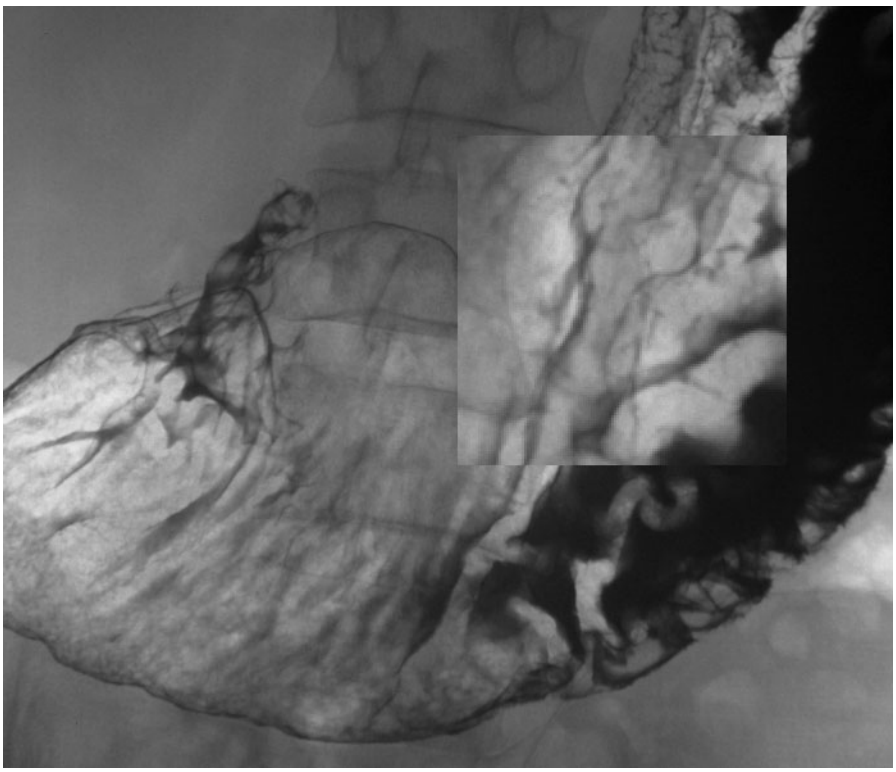
Note

The magnifying glass function is not possible on a zoomed image.

Magnifying image details

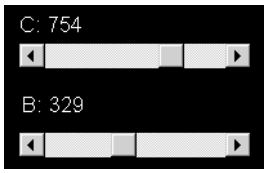
✧ Move the mouse cursor into the image area.
– The mouse cursor takes the shape of a magnifying glass.

✧ Click on the detail in the image that you want to enlarge.
– The image around the position of the mouse pointer appears enlarged by a factor of 2.



Setting the window values

✧ Click on this icon.
– The sliders "**WW: ###** or **C:** ### " for window width / contrast and "**WC: ###** or **B:** ### " for window center / brightness are displayed.

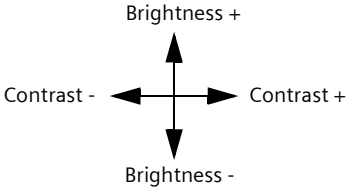


The current window values are shown in the bottom right-hand corner of the image and also at the sliders.

✧ Move the mouse cursor into the image area.
– The mouse cursor takes the shape of a barchart.

✧ Press the *left* mouse button and move the mouse cursor within the image, use the slider, click the arrow buttons or press an arrow key.

The window values are altered simultaneously.



Caution

Extreme window values

Risk of reduction of the image quality to a point where diagnosis is no longer possible

✧ Always check image quality visually before performing a diagnosis.

Using filters - edge enhancement and harmonization/DDO

Caution

Excessive use of edge enhancement and/or harmonization

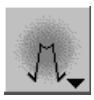
Risk of error in diagnosis caused by loss of displayed image information

✧ Check the visual impression of the image after image processing.

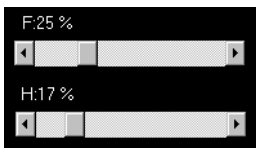
Note

It is possible to adjust the window values automatically when applying harmonization. This must be configured in service mode.

✧ Please consult Siemens Customer Service.



✧ Click on this icon.
– The sliders "**F: ###%**" for edge enhancement and "**H: ###%**" for harmonization are displayed.

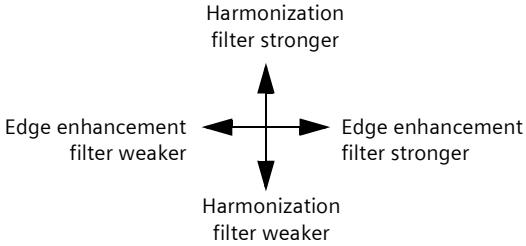


The current filter values are displayed in the bottom right-hand corner of the image and also at the sliders.

✧ Move the mouse cursor into the image area.
– The mouse cursor takes the shape of a cross.

✧ Press the *left* mouse button and move the mouse cursor within the image, use the slider, click the arrow buttons or press an arrow key.

Filtering is performed once you release the mouse button.

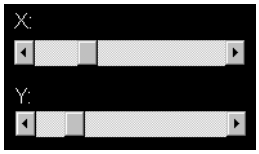


Note

Harmonization is possible only with single images / stored images acquired natively or series / stored fluoro loops acquired natively (but not with DSA series).

Displaying an electronic shutter

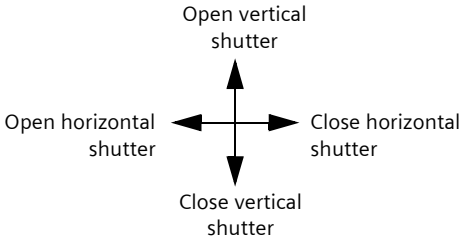
✧ Click on this icon.
– The sliders "**X: ###**" for horizontal position and "**Y: ###%** " for vertical position are displayed.



✧ Move the mouse cursor into the image area.
– The mouse cursor takes the shape of two crossed arrows.

✧ Press the *left* mouse button and move the mouse cursor within the image, use the slider, click the arrow buttons or press an arrow key.

The vertical and horizontal shutters are opened and closed simultaneously.



Note

For PERI stepping this function in only applied to a single subseries.

Zooming an image

DFR images are displayed in full size after acquisition (1k x 1k pixels). They can be zoomed by a factor of two and then panned so that the interesting part of the image is displayed.

Enlarging an image by a factor of 2

✧ Click on this icon.
– The image is enlarged by a factor of two.
– The icon changes to Zoom out.

– Pan is active.

✧ You can now pan the image.

Panning an image

Note

Panning can only be used if parts of the image are not visible, i.e. you have previously applied shuttering to the image or zoomed the image.

If this is not the case, then the panning icon is dimmed.

Note

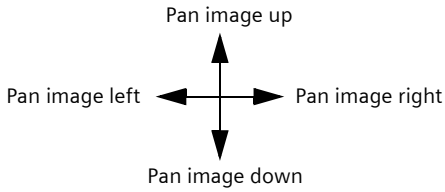
The shutter is preserved even if the image is zoomed.

✧ Click on this icon, if necessary.

✧ Move the mouse cursor into the image area.
– The mouse cursor takes the shape of two crossed arrows.

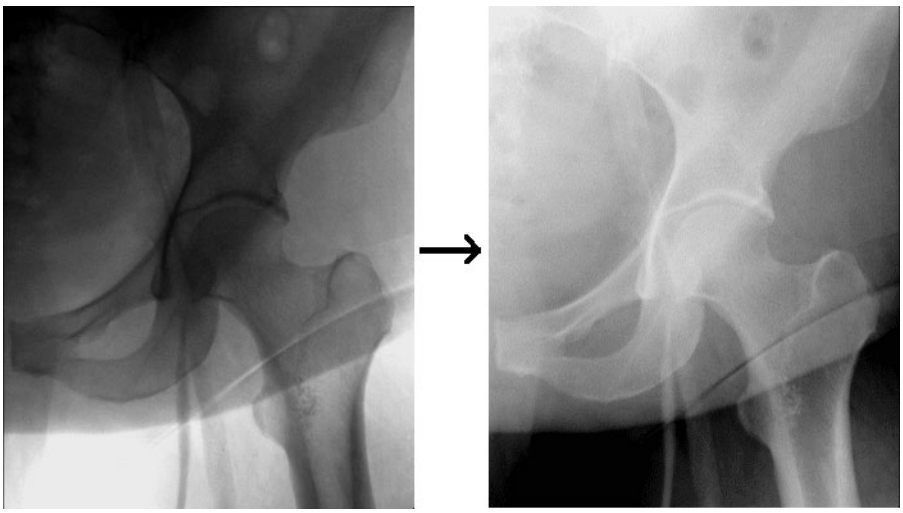
✧ Press the *left* mouse button and move the mouse cursor within the image, or press an arrow key.

The image is panned simultaneously in both axes.



Inverting gray scales

✧ Click on this icon.
– The gray scale of the images is inverted (black/white inversion: bones black to bone white or vice versa).
– The icon is shown with gray background.



Back to the state prior to inverting

✧ Click on this icon.
– The gray scale of the images is inverted back.

Flipping an image

Flipping vertically

✧ Click on this icon.
– The image is flipped vertically (left and right are reversed).
– The flip indicator appears on the left-hand side of the image.

Flipping horizontally

✧ Click on this icon.
– The image is flipped horizontally (top and bottom are reversed).
– The flip indicator appears on the left-hand side of the image.

Flipping vertically and horizontally

✧ Click on this icon.

✧ Click on this icon.
– The image is flipped in both directions (= 180° rotation).
– The flip indicator appears on the left-hand side of the image.

Note

Graphic elements shown in the image are also flipped and retain their position with respect to the image.

Note

If an image is flipped the R/L labels are overlaid by the flip indicator and the label functions are disabled.

Image annotation

Note

Image texts and comments are valid only for one frame but not for a whole series. It is therefore no “series comment”.

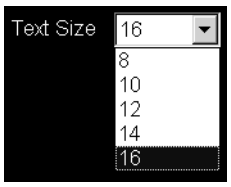
✧ If you want to have the same image text/comment on each frame of a series, you must enter the image text/comment on each frame.

✧ Click on this icon.
– The enter boxes for text and comment are displayed.

Placing text in the image

✧ Click into the “Text” box.

✧ Enter your annotation text (up to maximum of 60 characters) or select the text from the list.



✧ Select the required **Text Size**.

✧ Move the mouse cursor into the image area.
– The mouse cursor takes the shape of the letter “A”.

✧ Click on a position in the image.
– The text appears at that position.

Note

You can place the same text in the image more than once by clicking on the image more than once.

Adding and removing list entries

Text lists on page 39

Marking a text

For subsequent operations, a text has to be marked.

✧ Select the **Graphics** subtask card.

✧ Move the mouse cursor into the image area.
– The mouse cursor takes the shape of a hand.

✧ Click on the text.

Or

✧ Click in a corner and hold the mouse button pressed.

✧ Draw the mouse pointer over the required text(s).
Changing graphic elements subsequently on page 131
– The text is marked with a square.

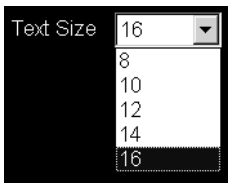
Moving a text

✧ Mark the text.

✧ Drag the text to the required position.

Changing the font size of a text

✧ Mark the text.



✧ Select the required **Text Size**.

Deleting a text

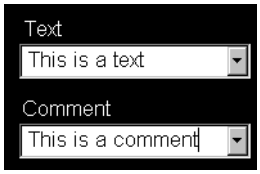
✧ Mark the text.

✧ Press the **Del** key.

Or

✧ Click on this icon.

Adding comment lines



✧ Click into the “Comment” box.

✧ Enter your comment (up to maximum of 100 characters) or select a comment from the list.
– The comment appears centered below the image.

New comment

✧ To change the comment, overwrite the old text.

Change items

Text lists on page 39

Delete comment

✧ Mark the comment text with the mouse.

✧ Press the **Del** key.

Adding R/L labels

For paired organs (e.g. kidneys), it may be necessary to mark the left or right one. With the label function you can add R or L labels to the left or right side of the image.

Note

The label function is enabled only if the image is not flipped.

✧ Select the **Graphics** subtask card.

✧ Click on this icon.
– A window with the available labels and label positions is displayed.

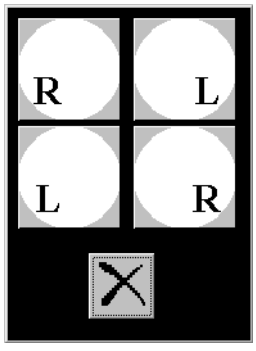
Warning

Incorrectly placed R/L labels

Risk of incorrect diagnosis, e.g. surgical intervention on the wrong side

The examining physician is responsible for correct R/L labelling.

✧ Make sure that the R/L labels are placed correctly.



✧ Click the required label and the correct label position.
– The R/L label is displayed on the corresponding side of the image.

Or

✧ Click on the cancel icon.
– No label is set.

Removing the label

✧ Click on this icon.
– A window is displayed.

✧ Confirm or cancel clicking the appropriate icon.

Note

R/L labels are not displayed when the image is flipped.

Placing graphic elements

✧ Select the **Graphics** subtask card.

Note

A maximum of 50 graphic elements or texts can be placed in an image (an angle counts 2 graphic elements).

Adding circles to the image

✧ Click on this icon.

✧ Click on the position in the image at which you want have the circle center and release the mouse button.
– A circle is displayed when moving the mouse.

✧ Click on the position in the image at which you want have the circle line (circle radius).
– The circle is displayed.

Adding arrows to the image

✧ Click on this icon.

✧ Click on the position in the image at which you want the arrow to begin and release the mouse button.

✧ Click on the position in the image at which you want the arrow to end (arrow head).
– The arrow is displayed.

Calibration and measuring distances

All images are calibrated automatically by the system.

You can redefine calibration and/or measure distances.

Calibration method

The system offers three different calibration methods (in this sequence):

1. Automatic calibration by the system
2. Semiautomatic calibration using the Table-Object-Distance (TOD)
3. Manual calibration using a known distance in the image

Note

The calibration object should be in the same plane as the organ to be measured. To minimize distortion, it must be as near the middle of the image intensifier as possible.

Calibration precision is directly dependent on the length of the calibration distance: At longer calibration distances the measurement is more precise.

Precision also depends on the image intensifier format (zoom step): Calibration is more precise at smaller image intensifier formats.

Note

When you have calibrated an image of a series, the calibration is valid for all images of that series.

Note

For fluoroscopic images or fluoro loops automatic calibration is not possible, only manual calibration is possible.

✧ Perform a manual calibration for the image (distance line).

Starting distance measurement and/or (re-)calibration

✧ Click on this icon.
– A window appears, offering to draw a distance (or to recalibrate).

(Auto-)Calibrated

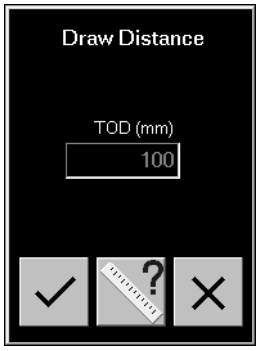
Drawing distances on page 126

(Re-)Calibration

❑ *(Re-)Calibrating, using the object height* on page 127

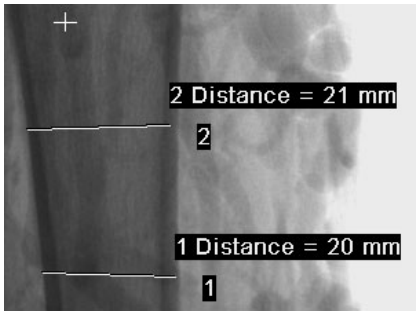
❑ *(Re-)Calibrating, drawing a known distance* on page 127

Drawing distances



✧ Click on the position in the image at which you want distance measurement to begin and release the mouse button.

✧ Click on the position in the image at which you want distance measurement to end.
– A line and the distance measurement in mm are displayed.



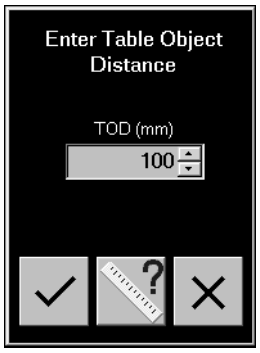
✧ Click on the OK icon.

Note

All distance entries are automatically recalculated when you recalibrate the distance measurement.

(Re-)Calibrating, using the object height

✧ Click on this icon.
– The window changes offering to enter the TOD (Table - Object Distance).



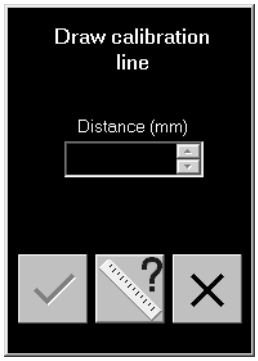
✧ Enter the Table-Object-Distance TOD (mm).

✧ Click on the OK icon.
– All distances are updated.

Now you can draw distance lines using this calibration.
Drawing distances on page 126

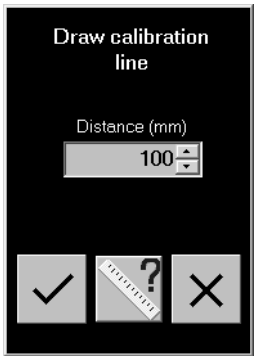
(Re-)Calibrating, drawing a known distance

✧ Click on this icon.
– The window changes offering to draw a calibration distance line.



✧ Click on the starting point of the known distance in the image and release the mouse button.

✧ Click on the end point of the known distance in the image.
– The window changes offering to enter the calibration distance.



✧ Enter the exact distance in mm.

✧ Click on the OK icon.
– All distances are updated.

Now you can draw distance lines using this calibration.
Drawing distances on page 126

Removing the calibration line

If a calibration with a calibration line has been performed, the calibration line is displayed in the image and, normally, cannot be removed. This ensures that the calibration performed is documented. If you want to remove the calibration line anyway proceed as follows:

✧ Click on this icon.
– The calibration window opens.

✧ Click on this icon.

✧ Click on the cancel icon *twice*.

Measuring angles

✧ Click on this icon.

✧ Click on the position in the image at which you want the *first side* of the angle to *begin* and release the mouse button.

✧ Click on the position in the image at which you want the *first side* of the angle to *end* and release the mouse button.

✧ Click on the position in the image at which you want the *second side* of the angle to *begin* and release the mouse button.

✧ Click on the position in the image at which you want the *second side* of the angle to *end* and release the mouse button.
– The two sides and the angle they include are displayed.

Note

The value of the angle is always displayed at the end of the second side.

Measuring stenosis

With the stenosis calculation, the percent reduction of stenosis is calculated. The results are displayed in geometrical and densitometric values.

Note

Stenosis measurements should be made preferably in images displayed subtracted.

In native display, or with anatomic background, the edge location must be tested and the vessel borders must be corrected manually, if necessary.

Editing the vessel on page 130.

Performing stenosis calculation

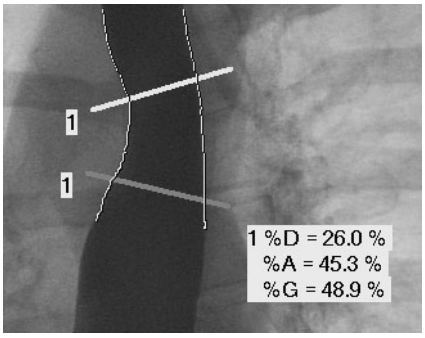
✧ Select a suitable image.

✧ Click on this icon.
– A window appears.

Drawing the vascular course

✧ Mark one or more points in the middle of the vessel along the vascular course by performing single mouse clicks.
– The points are connected by a line.

✧ Mark the end of the stenosis by performing a double-click.
– A contour is detected and drawn into the image.
– The "stenosis" (white) and the "reference" (gray) diameter are detected and displayed within this section by a bar cursor.
– The calculated values are listed beneath.

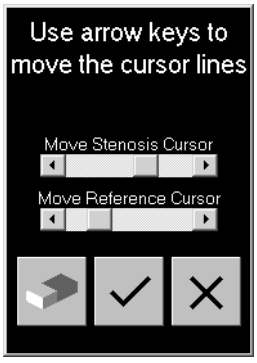


Displayed parameters

- ❑ **%D**: (D = Diameter) Ratio of the vessel's diameter at the stenosis cursor displayed, relative to the reference diameter (%)
- ❑ **%A**: (A = Area) Ratio of the calculated circular area ($1/4\ \pi\ D^2$) of the stenosis diameter, relative to the calculated circular area of the reference diameter (%)
- ❑ **%G**: (G = Gray value) Ratio of the calculated densitometrically determined stenosis density, relative to the reference density (%)

Moving the stenosis cursor and reference cursor

The automatically determined positions of "stenosis" and "reference" can be changed.



✧ Drag the appropriate slider to the required position or click on the arrow buttons.

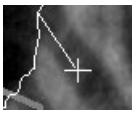
Or

✧ Press the ↑ or ↓ key to move the stenosis cursor.

✧ Press the → or ← key to move the reference cursor.
– The values are updated automatically.

Editing the vessel

It is possible to change the contour determined automatically.



✧ First, mark the starting point of the edge of the vessel to be changed by performing a single mouse click.
– When the cursor is within a valid vessel position, it changes its shape to a cross.

✧ Mark intermediate points with further mouse clicks, if necessary.
– The points are connected by a line.

✧ Then mark the end point of the edge of the vessel to be changed by performing a double-click.
– The vessel contour located in between is changed.

Moving the stenosis text block

After a stenosis has been drawn into the image it is possible to move the text block to another position, e.g. when it covers an important detail.

✧ Click and drag the text block to the required position.
– The stenosis cursors and the text blocks correspond to each other with a number.

Confirming a stenosis

✧ Click on the OK icon.

Drawing further stenosis

✧ Proceed as described above.

Deleting a stenosis

✧ Click the stenosis to delete.
– The stenosis is marked with little squares.

✧ Click on this icon.
– The selected stenosis graphics is removed.
– Other stenosis graphics are retained.

Storing the stenosis image

✧ Click on this icon.
– The stenosis graphics are “burned into” the image.
– The image is stored as a new image and is assigned to the study.

Changing graphic elements subsequently

You can process, move or remove all graphic elements after they have been placed on the image. To do this, you must first select one or more graphic elements.

Note

Graphic elements and corresponding numerical values, if present, are linked together by a numeric identifier.

The numeric blocks can be moved to any position of the image.

Selecting graphic element(s)

✧ Select the **Graphics** subtask card.

✧ Click on this icon.

✧ Move the mouse cursor into the image area.
– The mouse cursor takes the shape of a hand.

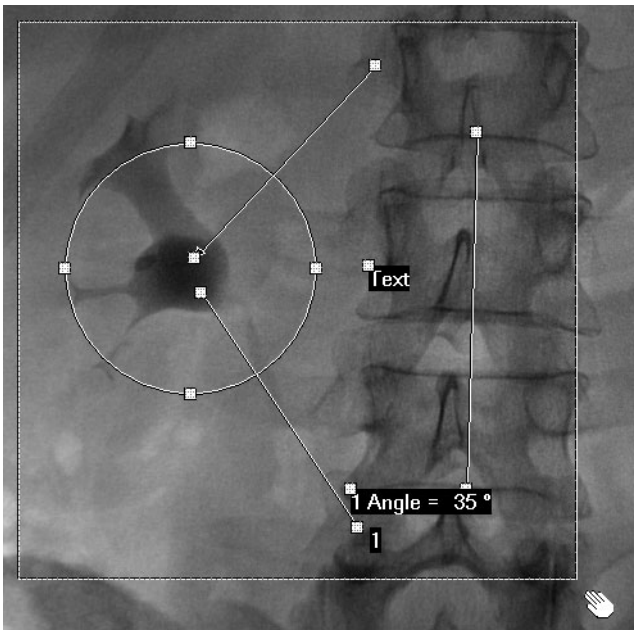
✧ Click on the required graphic element(s) in the image.

Or

✧ Click in a corner and hold the mouse button pressed.

✧ Draw the mouse pointer over the required graphic element(s).

✧ Release the mouse button.
– The graphic element(s) is(are) displayed with small squares at the ends. It is (they are) now selected.



Selecting all graphic elements

✧ Press the **Ctrl** key on the keyboard *and* click on this icon.
– All graphic elements are displayed with small squares at the ends. They are now selected.

Moving graphic element(s)

✧ Select the required graphic element(s) as described above.

✧ Move the mouse cursor onto the selected graphic element(s).
– The mouse cursor takes the shape of two crossed arrows.

✧ Click and drag the graphic element(s) to the required position.

✧ Release the mouse button.

Removing graphic element(s)

✧ Select the required graphic element(s) as described above.

✧ Press the **Del** key.

Or

✧ Click on this icon.
– The selected graphic elements are removed.

Deselecting graphic element(s)

✧ Click anywhere.

DSA postprocessing

Introduction

Unlike bones, for instance, vessels show no significantly stronger absorption of X-rays compared with the surrounding tissue. Vessels are therefore not especially emphasized in X-ray images without further measures.

In *digital subtraction angiography (DSA),* X-rays are taken of the region to be examined:

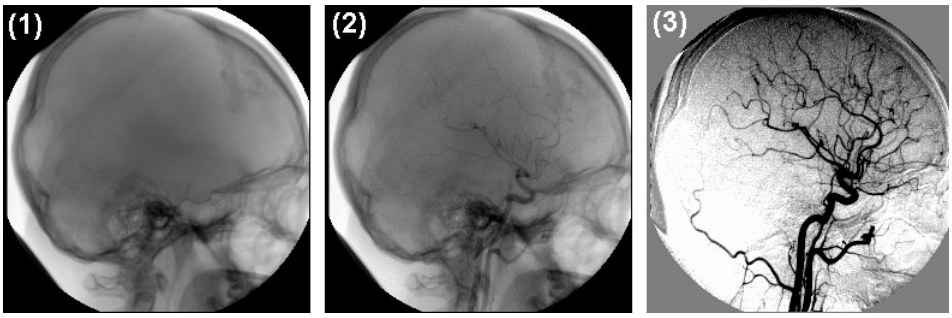
❑ *without* contrast medium

and

❑ *with* contrast medium

A subtraction is then performed between the two images.

The regions with the same attenuation cancel one another out in the subtraction image and the regions with (slightly) different attenuation, such as vessels containing contrast medium when acquired, are clearly emphasized.



(1) Mask image (without CM)

(2) Fill image (with CM)

(3) Subtracted image

DSA postprocessing functions

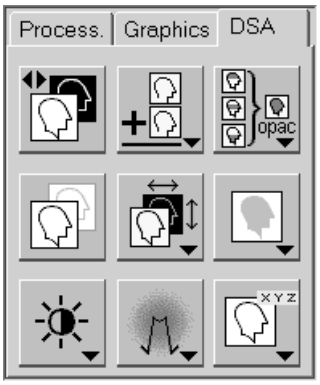
The FLUOROSPOT Compact offers the following postprocessing functions to generate and display subtraction images optimally:

- ❑ Changing the mask
  Selecting the image which is subtracted from all images of a series.
- ❑ Native/Subtracted
  Switching between subtracted and unsubtracted display
- ❑ Opacification (Max Opac or Min Opac)
  An image with complete contrast medium filling is generated.
- ❑ Pixel shift
  Method for making images and the mask coincide exactly.
- ❑ Anatomical background
  The unsubtracted image is faded into the subtracted image in order to show the surrounding tissue in addition to the vessels.
- ❑ Averaging
  Several fill and/or mask images are averaged.
  This improves the noise impression, especially at low dose.

The DSA tools

You will find the tools with which you can display a series subtracted optimally on the **DSA** subtask card.

✧ Click the **DSA** subtask card into the foreground, if necessary.



DSA subtask card

Note

The functions on the DSA subtask card are only available if DSA is installed and the loaded image was acquired in DSA mode!

Changing the mask

During a DSA exposure, the mask (= subtracted image) is set automatically after the control stop. This depends on the frame rate of the series. At the latest it is set after two seconds.

frame rate	0.5 f/s	1 f/s	2 f/s	3 f/s	4 f/s	6 f/s	8 f/s
mask image	3rd			4th	5th	6th	7th

You can change the automatically set mask image.

This is done by moving the mask image.

Note

All pixel shift values are reset by setting a new mask.

✧ Select the series/image for which the mask should be changed.

IR control

✧ Press the **Remask** button on the infrared remote control.

Console

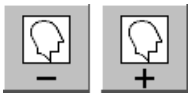
✧ Click on this icon.

IR control

✧ Press the **Paging** →/← button on the infrared remote control.

Console

✧ Click on one of these icons or



✧ press the **Page Down**/**Page Up** key on the keyboard or

✧ rotate the **wheel** of the mouse.

The mask is switched backwards or forwards by one image.

Note

The mask is changed “in a loop”. This means after the last image of the series the first is set or after the first image of the series the last is set for mask image.

Stopping remask

IR control

✧ Press the **Remask** button on the infrared remote control again.

Console

✧ Click on this icon.

Switching between subtracted and unsubtracted display

A DSA acquisition series is displayed subtracted as a rule.
However, each subtracted series can also be displayed unsubtracted, i.e. native:

Switching over to native

IR control

✧ Press the **Sub. / Native** button on the infrared remote control.

Console

✧ Click on this icon.
– The image/series is displayed native.
– The icon changes.
– All other DSA functions are dimmed.

Switching back to subtracted

IR control

✧ Press the **Sub. / Native** button on the infrared remote control.

Console

✧ Click on this icon.
– The image/series is displayed subtracted.
– The icon changes back.
– All other DSA functions are enabled again.

Generating the image with maximum contrast medium filling (Max/Min Opac.)

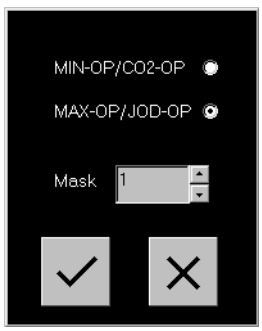
Usually the contrast medium does not fill the vessels uniformly after the injection, but the contrast medium bolus "wanders" through the vessels. With the aid of the Max Opac function (or Min Opac function in CO_2 DSA), the images of the filling phase (= phase in which contrast medium is in the vessels of interest) are summed. In this way, the entire contrast medium passage is combined in one image.

✧ Select the series from which a Max(Min)-Opac image is to be generated.

Note

At least one image must be between the mask and the current image. Otherwise this function is disabled.

✧ Click on this icon.
– A window appears.



In most cases, the contrast agent is iodine. Therefore "MAX OP / IOD OP" is the default setting.

✧ Click "MIN OP / CO2 OP", if necessary.

✧ Select the required number of mask images to be averaged (1, 2, 4, 8, 16).

✧ Click on the OK icon.
– The image with maximum contrast medium filling is calculated and displayed.

Note

For calculation, the images between the mask and the current image are used.

Storing as new image

You can store the Opac image for postprocessing or documentation:

✧ Click on this icon.

Making the image and mask coincide exactly (Pixelshift)

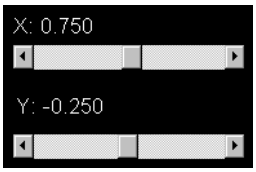
The patient or the system can move slightly between the exposures. The images used to perform the subtraction will therefore not completely coincide under certain circumstances. The consequence of this is that the anatomical background, especially in the region of image contrasts, is not completely removed (motion artifacts).

You can make the image and mask coincide exactly by shifting the image by single pixels or fractions of these.

However, this may not be equally successful for all regions of the image, since different pixel shift amounts can arise in different regions of the image due to the image geometry and elasticity of the human body.

✧ Select the image in which pixel shift should be performed.

✧ Click on this icon.
– The sliders "**X: #.###**" for horizontal position (in pixels) and "**Y: #.###** " for vertical position (in pixels) are displayed.



The current pixel shift values are displayed in the bottom right-hand corner of the image and also at the sliders.

✧ Press the *left* mouse button and move the mouse cursor within the image, use the slider, click the arrow buttons or press an arrow key.

Pixel shift is done simultaneously.

Note

The current pixel shift values (X: ..., Y: ...) are shown in the bottom right-hand corner of the image if they are not zero.

To terminate pixel shift

✧ Click on this icon.

Or

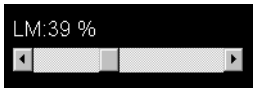
✧ Click on another icon.

Fading in anatomical background (Landmark)

The anatomical surroundings of the vessels of interest are normally not visible in a series displayed subtracted. The surrounding tissue can be emphasized more or less by fading in the unsubtracted image:

✧ Select the series/image in which the anatomical background should be faded in.

✧ Click on this icon.
– The slider "**LM: ###%** " is displayed.
– The current landmark value is displayed in the bottom right-hand corner of the image and also at the slider.



You can set the anatomical background between 0% and 100%.

- ❑ 0% corresponds to subtracted display
- ❑ 100% correspond to unsubtracted display (native)
- ✧ Press the *left* mouse button and move the mouse cursor within the image, use the slider, click the arrow buttons or press an arrow key. → / ←

The anatomical background is faded in simultaneously.

Note

The current landmark value (LM: ...) is shown in the bottom right-hand corner of the image.

To terminate landmark

✧ Click on this icon.

Or

✧ Click on another icon.

Improving the noise impression (Averaging)

Especially with low dose, it can be advantageous to use the mean value from several images instead of a single image as the fill and/or mask, since the noise component is reduced by averaging.

Note

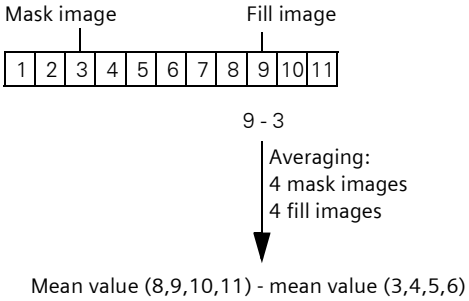
Averaging is not possible in native display.

Rules

Averaging is performed according to the following rules:

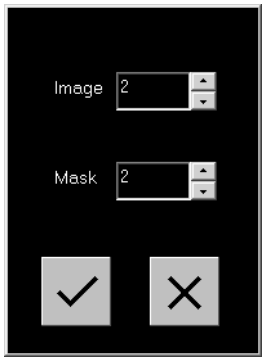
- ❑ In the case of mask images, the averaging acts “forwards”, e.g., the selected mask image and the following mask images are averaged.
- ❑ In the case of fill images, the averaging acts “on both sides”, e.g., the filled images before and after are averaged.
- ❑ If the end of the series is reached, the last image can be included several times in the calculation under certain circumstances.
- ❑ The averaged mask image is subtracted from the averaged filled image.

Example:



✧ Select the series/image in which the images should be displayed averaged.

✧ Click on this icon.
– A window appears.



✧ Enter the number of required fill and/or mask image to be averaged (1, 2, 4, 8, 16) or use the arrows.

✧ Click on the OK icon.
– The averaged image is calculated and displayed.

Storing as new image

You can store the averaged image for postprocessing or documentation:

✧ Click on this icon.

Canceling Averaging

✧ Click on this icon.

Checking image quality(IQ)

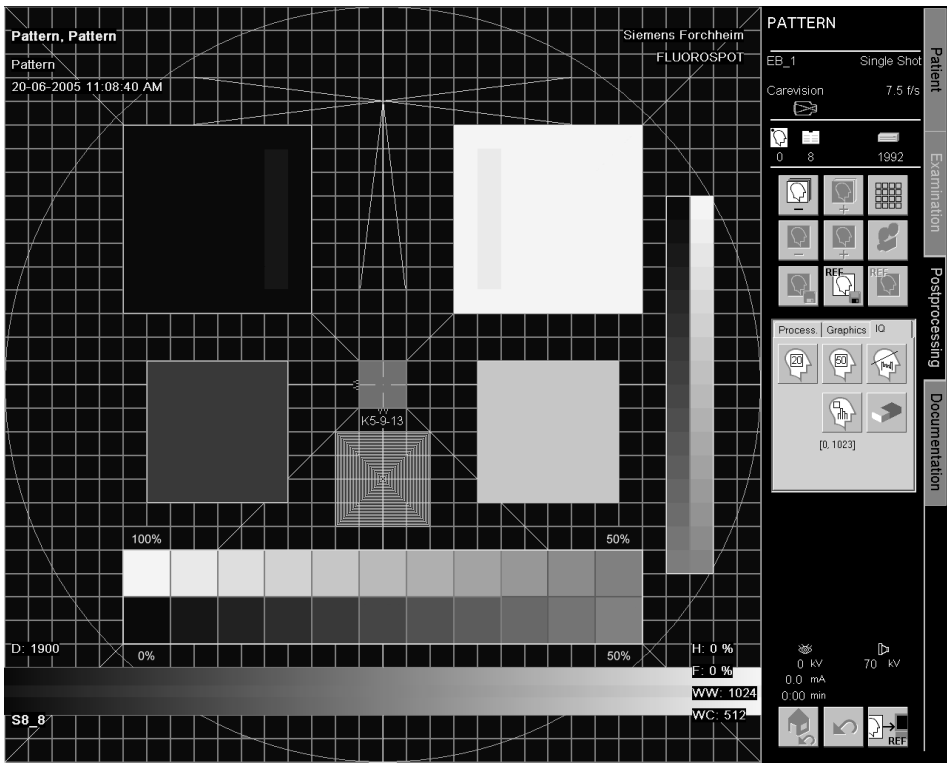
For image quality (IQ = Image Quality) checks of the hardcopy camera, of the monitor and of acquired images a couple of functions are available in the system.

Performing IQ on test images

Some test images are available for test purposes:

✧ Click on the **Settings** tab in **Patient** mode, if necessary.

✧ Click on this icon.
– The system switches to **Postprocessing** mode.
– Image quality is activated automatically in the background.
– A test image is displayed.



Selecting other test images

✧ Click on the **Documentation** tab.
– The test image catalog is displayed.

✧ Select the test image required.

Performing IQ on patient images

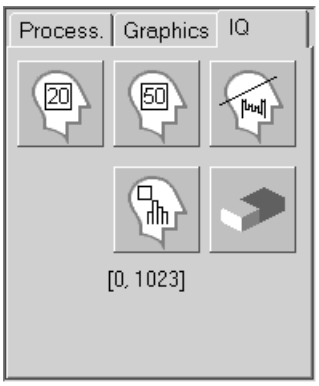
✧ Click on the **Patient** tab, if necessary.

✧ Select a study in the **Examined Patients** list.

✧ Click on the **Settings** tab, if necessary.

✧ Click on this icon.
– The system switches to **Postprocessing** mode.
– Image quality is activated.

Now special IQ functions are available.



IQ subtask card

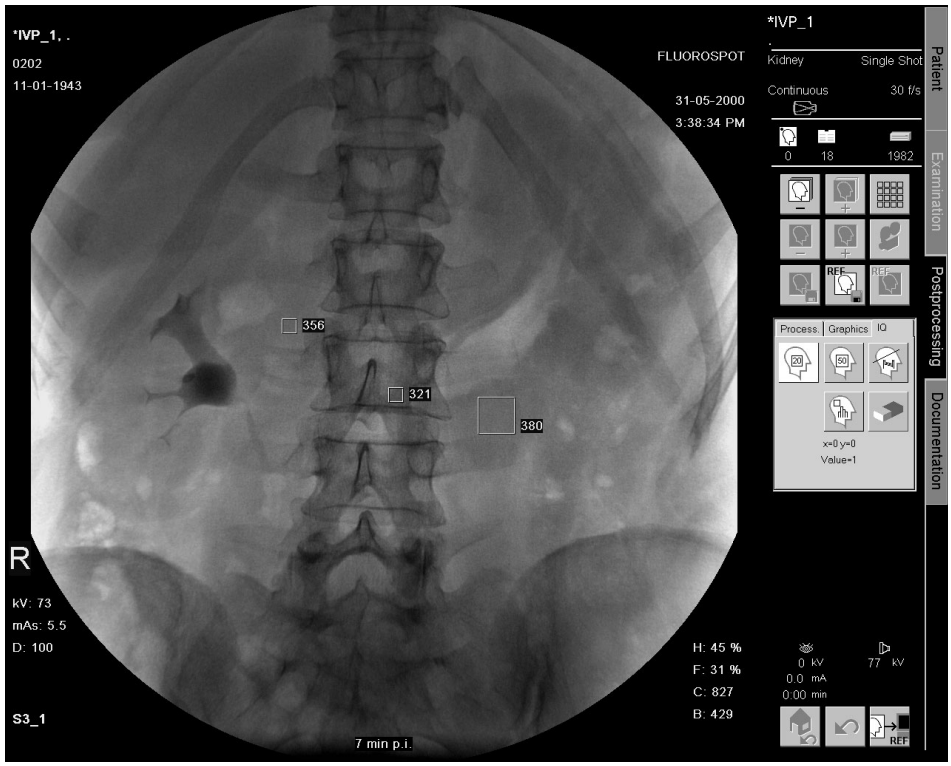
Measuring pixel values - ROI 20 / ROI 50

With the ROI functions (ROI = Region Of Interest) you can calculate the mean value of the gray scales over an area of 20x20 or 50x50 pixels.

✧ Click on the required icon.

✧ Click on the regions of interest in the image.
– A ROI is set and the mean value of the gray scales is displayed next to it.

The current position of the mouse pointer is displayed on the right.



Quality test ROI

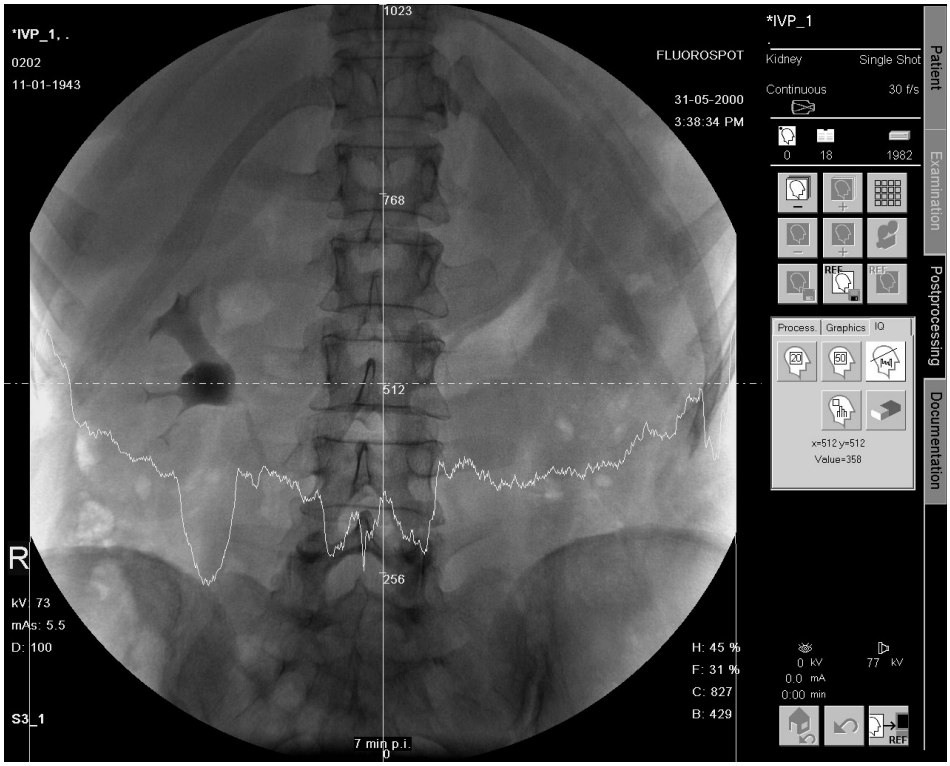
Removing ROIs

✧ Click on this icon.

Measuring pixel values - Line profile

With line profile, you can check the image pixel values:

✧ Click on this icon.
– Test lines and a crosshair are displayed in the test image.



Quality test line profile

✧ You can move the crosshair with the mouse.
– The current position and the associated gray scale value are displayed on the right.

Note

The pixel values correspond to *non*-processed gray values.

Therefore, apply the line profile to non-processed images only.

Removing the line profile

✧ Click on this icon.

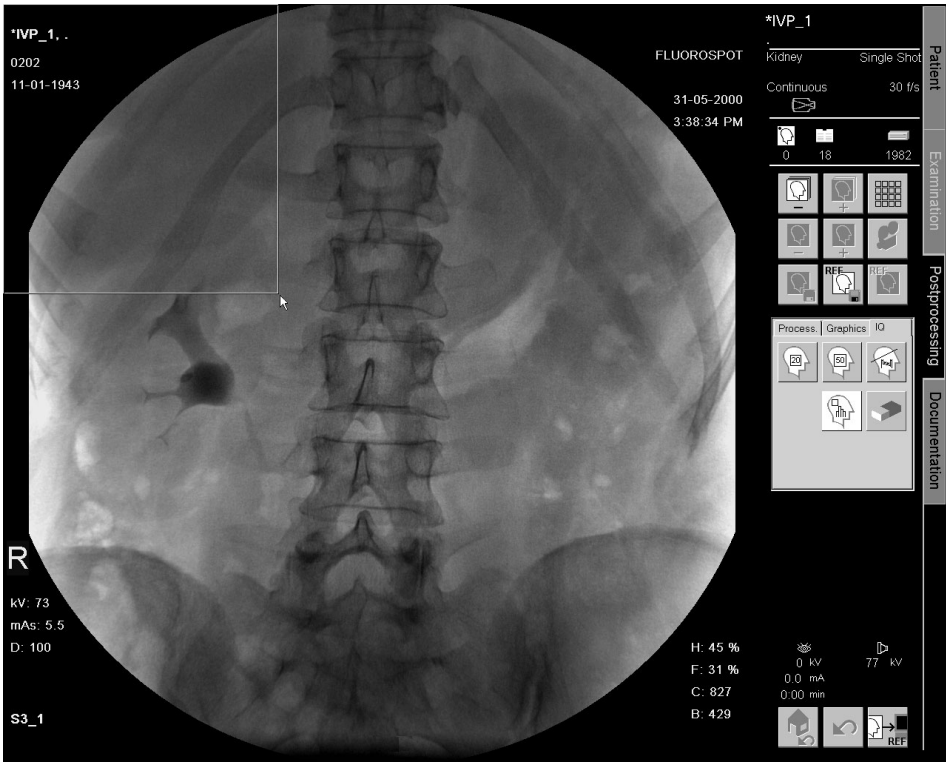
Measuring pixel values - Histogram

You can display a histogram for any rectangular ROI.

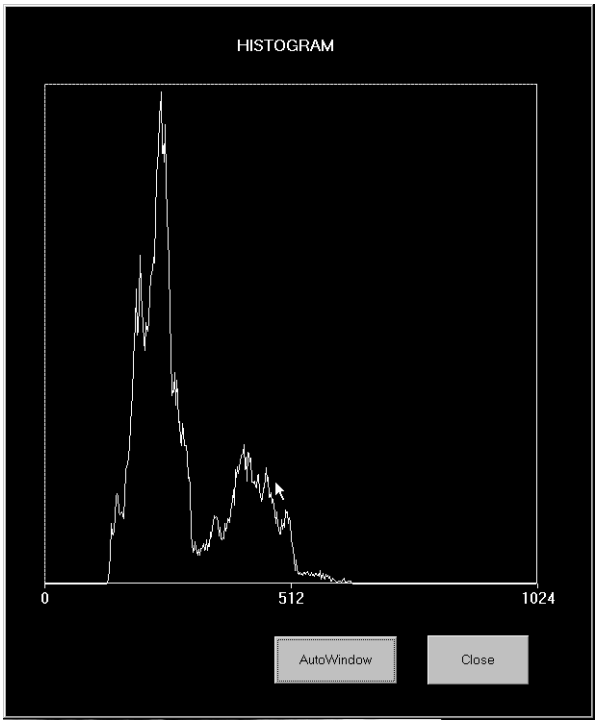
✧ Click on this icon.

✧ Click in a corner and release the mouse button.

✧ Draw the mouse pointer over the required ROI.



✧ Click the diagonal corner.
– A window displaying the histogram appears.



Applying automatic window values

✧ Click on **AutoWindow**.
– Optimized window values based on the histogram of the ROI are applied to the image.

Closing the histogram

✧ Click on **Close**.

Deactivating IQ

✧ Click on the **Patient** tab.
– The functions for checking the image quality are deactivated automatically.

Image documentation

Overview of the series/images of a study/series

In **Documentation** mode, you obtain an overview of the series/images of a study/series in split format.

Note

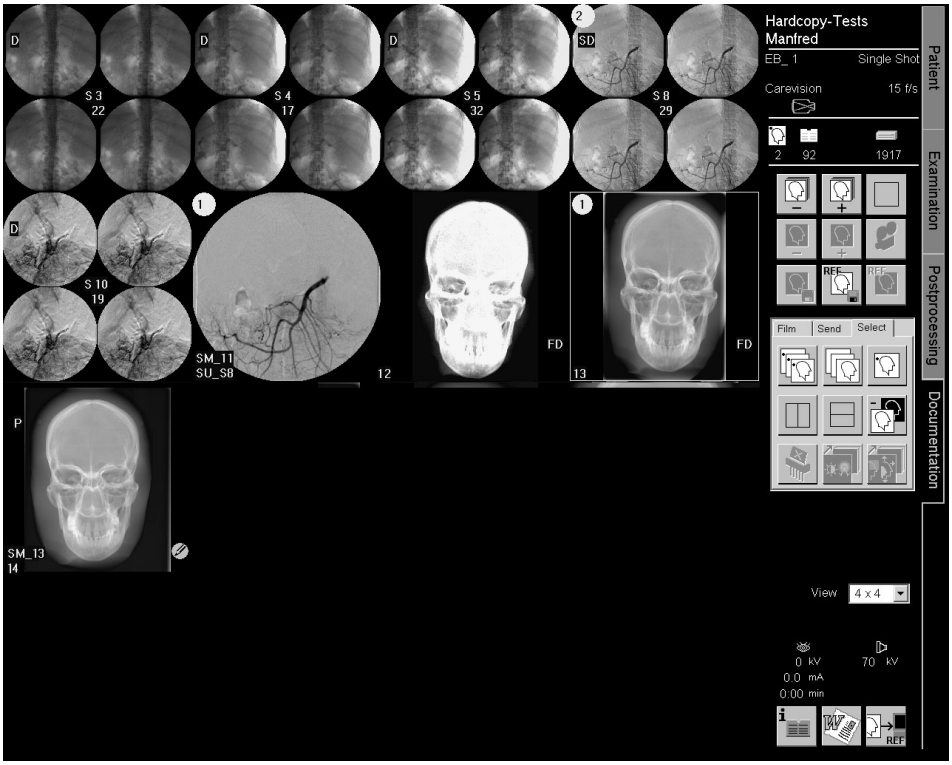
The images and series are ordered according to generation time except modified images created with the store image function.

See also *Image display* on page 105

Displaying the overview of a study

✧ Select a *study* in the **Examined Patients** list.

✧ Click on the **Documentation** tab.
– The image catalog (*overview page*) of the study is displayed.



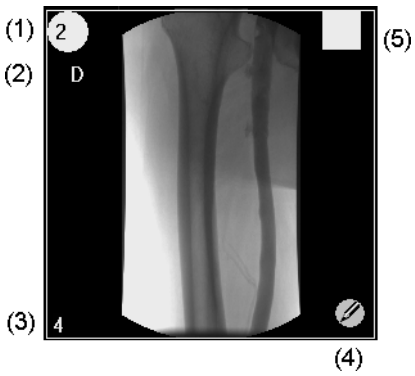
Series/images catalog of a study

Note

If you switch from any other mode to the **Documentation** mode then the last acquired/processed series/image is selected.

Display of images and series

The series/images are displayed in rows in the order in which they were acquired.



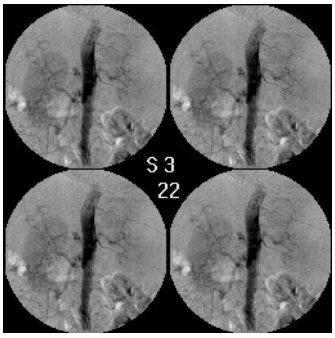
(1) In the upper left-hand corner, a white circle with the mark number is displayed if the series/image has been marked for transfer operations.

(2) The archive flag is also shown in the upper left-hand corner, if present.

(3) For single images, the image number is shown in the bottom left-hand corner.

(4) If the image has some graphics drawn-in, an edit symbol is shown in the lower right-hand corner.

(5) For some purposes (e.g. export), it is necessary to set another marker. In this case a white square in displayed in the upper right-hand corner.

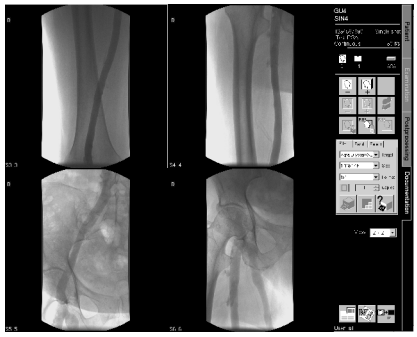


❑ For a series, four small images (the representative/middle image of the series) are displayed. The series number and the number images in the series are shown in the center.

Selecting the layout

You can select the size and number of images displayed in **Documentation** mode.

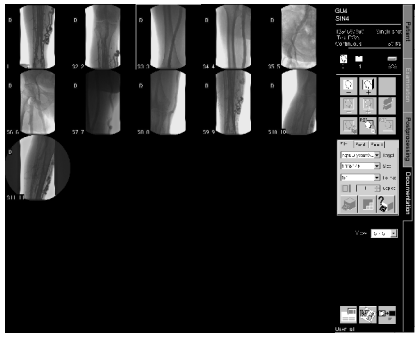
2x2



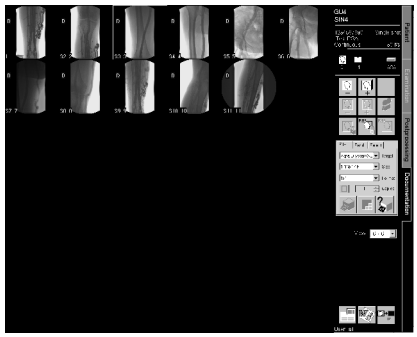
3x3

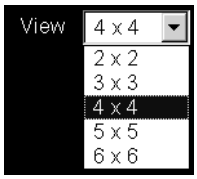
4x4 (default)

5x5



6x6





✧ Select the required **View**.
– The layout is changed immediately.

Printing the study overview on a paper printer

✧ Press the **Prt Sc** key.
– The image overview of the study is sent to the configured paper printer.
See also *Paper printing of images* on page 113

Displaying the overview of a series

Note

Stored fluoro loops are also considered as series.

✧ Proceed as described above.

✧ Click on the required *series*.

✧ Click on this icon.

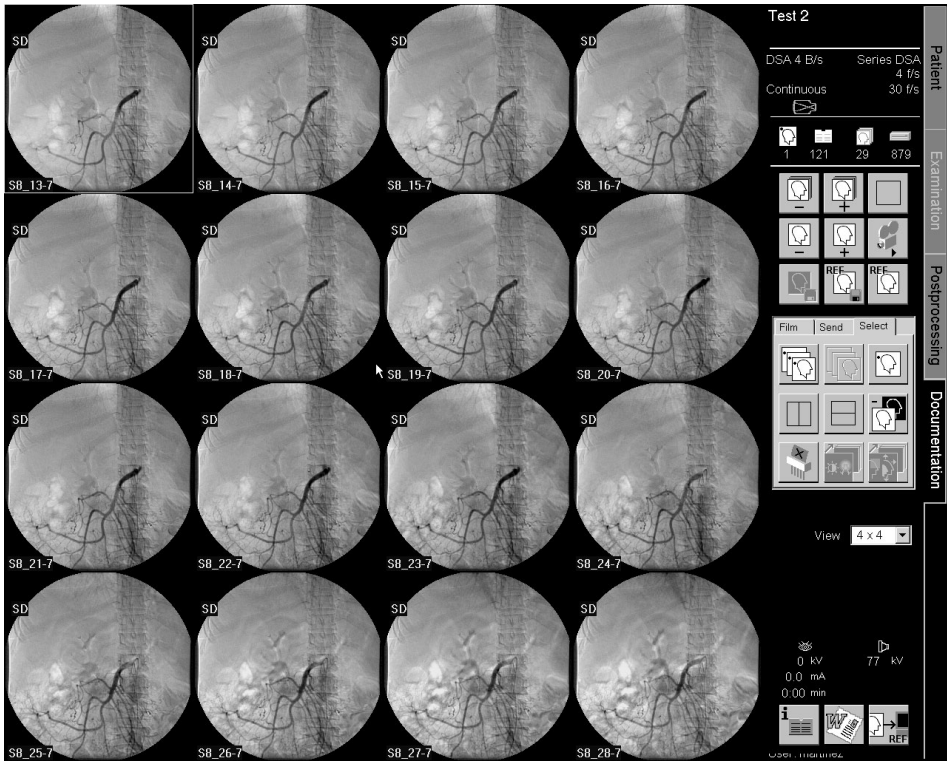
Or

✧ Double-click on the required *series*.

IR control

✧ Press the **Mon. Split** button on the infrared remote control.

The image catalog of the series is displayed.



Images catalog of a series

Printing the series overview on a paper printer

✧ Press the **Prt Sc** key.
– The image overview of the series is sent to the configured paper printer.
See also *Paper printing of images* on page 113

Displaying an image/series in full size

✧ Proceed as described above.

✧ Click on the required image or series.

✧ Click on this icon.

Or

✧ Double-click on the required *image*.

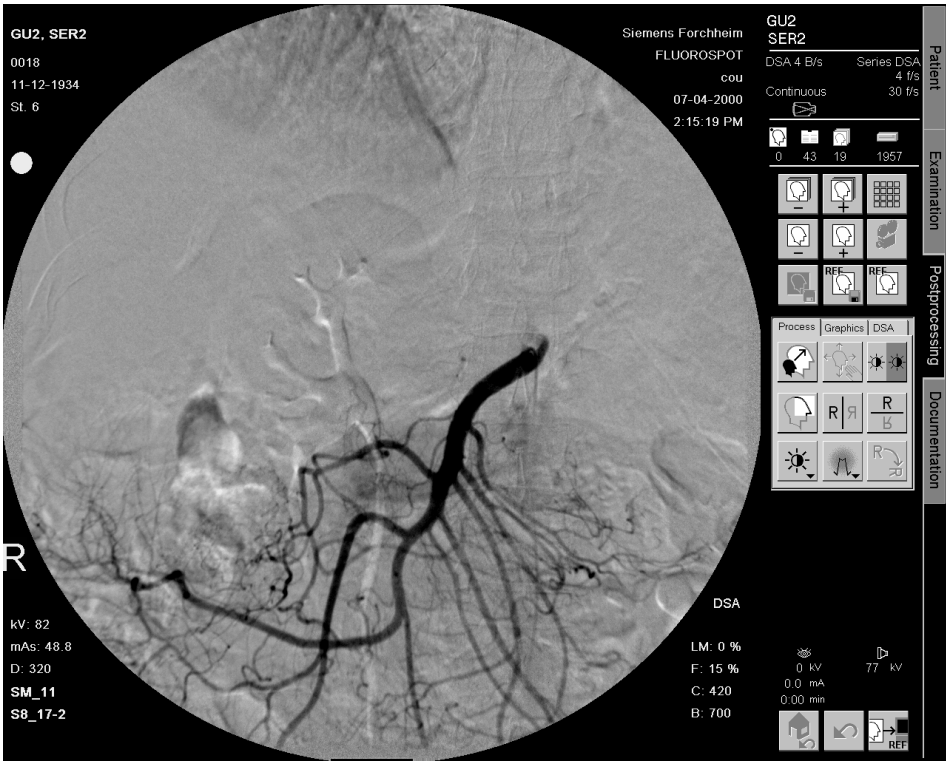
Or

✧ Click on the **Postprocessing** (or **Examination**) tab.

IR control

✧ Press the **Mon. Split** button on the infrared remote control.

The image is displayed in full size.
See also *Image display* on page 105



Printing an image on a paper printer

✧ Press the **Prt Sc** key.
– The image is sent to the configured paper printer.
See also *Paper printing of images* on page 113

Back to overview page

✧ Click on this icon.

Or

✧ Click on the **Documentation** tab.

IR control

✧ Press the **Mon. Split** button on the infrared remote control.

The image catalog (*overview page*) of the study is displayed again.

Summary of display modes

From mode	To mode	Icon	Alternative actions
Examination, **Postprocessing**	**Documentation** study overview		❑ **Documentation** tab ❑ **Return** key on the keyboard ❑ **Mon. Split** button on the infrared remote control
Documentation overview page	**Documentation** series overview		✧ Select the required *series* and ❑ **Return** key on the keyboard ❑ **Mon. Split** button on the infrared remote control Or ✧ Double-click on the required *series*.
Documentation overview page or series overview	**Postprocessing** full size image		✧ Select the required *image* and ❑ **Return** key on the keyboard ❑ **Postprocessing** tab
	Examination full size image	-	✧ Select the required *image* and ❑ **Examination** tab ❑ **Mon. Split** button on the infrared remote control Or ✧ Double-click on the required *image*.

Paging in study or series overview

If not all series/images can be displayed on the screen, you can page through. Rows are moved up and down as necessary; the first or last row is then pushed out of the display.

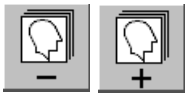
Note

If icons are dimmed, there are no more series/images in that direction.

However, you can still page in the opposite direction.

Paging representatives of series / single images

In study overview:



Previous/next series (single image)

✧ Click on one of these icons.

Or

✧ Press the →/← key on the keyboard.

IR control

✧ Press the **Paging** →/← button on the infrared remote control.

If necessary, mode is changed to overview page.

The next image or series to the left/right is selected.

If necessary, the next row (four images) is pushed back/forward.

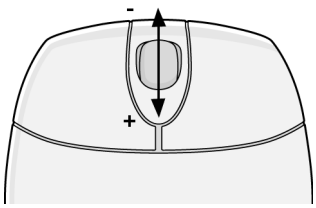
Series/image below

✧ Press the ↓ key on the keyboard.
– The next image or series below is selected.
– If necessary, the next row (four images) is pushed back.

Series/image above

✧ Press the ↑ key on the keyboard.
– The next image or series above is selected.
– If necessary, the next row (four images) is pushed forward.

Or



✧ Rotate the wheel of the mouse.
– The next image below/above is selected at each position of the wheel.
– If necessary, the next row (four images) is pushed forward/back.

First series/image

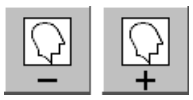
✧ Press the **Home** key on the keyboard.
– The first image or series of the study is selected.

Last series/image

✧ Press the **End** key on the keyboard.
– The last image or series of the study is selected.

Paging images of a series

Previous/next image (of a series)



✧ Click on one of these icons.

IR control

✧ Press the **Paging** → /← button on the infrared remote control.

If necessary, mode is changed to series overview.

The previous/next image is displayed.

Image to the right

✧ Press the → key on the keyboard.

Image to the left

✧ Press the ← key on the keyboard.

Image below

✧ Press the ↓ key on the keyboard.

Image above

✧ Press the ↑ key on the keyboard.

Next page of images

✧ Press the **Page Down** key on the keyboard.

Previous page of images

✧ Press the **Page Up** key on the keyboard.

First page of images

✧ Press the **Home** key on the keyboard.

Last page of images

✧ Press the **End** key on the keyboard.

Selecting images for processing

To process images, switch to **Postprocessing** mode.

The selected image

✧ Click on the **Postprocessing** tab.
– The selected image is displayed in full size.

A specific image

✧ Double-click on the image you want.
– The selected image is displayed in full size.

A series

You can process any individual image in a series.

✧ Double-click on the series.
– The series is displayed as an overview.

✧ Double-click on the image in the series you want to process.
– The selected image is displayed in full size.

Note

All functions, except the graphic functions, apply to all the images of a series in order to ensure consistent replay in a loop.

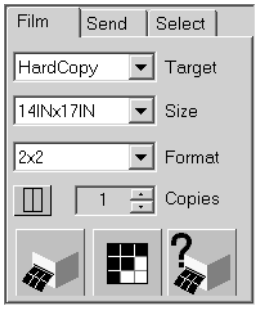
Documentation functions

In **Documentation** mode, three subtask cards are available.

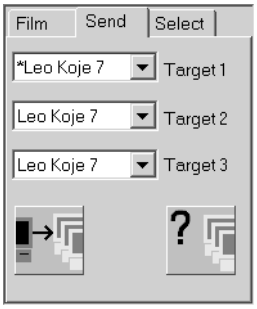
❑ On the **Film** subtask card hardcopy functions can be selected.

❑ On the **Send** subtask card network functions can be selected.

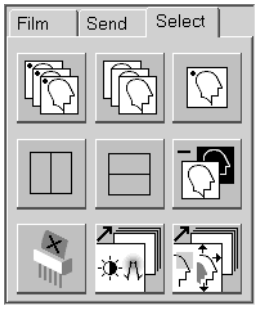
❑ On the **Select** subtask card you can mark and process images.



Film subtask card



Send subtask card



Select subtask card

Marking images or series

Before you transfer images or send them for hardcopy you must first select the images you want.

Marking individual images

✧ Click the required image(s) in **Examination**, **Postprocessing** or **Documentation** mode with the *right* mouse button in the sequence in which you want to transfer them.

Or

✧ Click on the **Select** tab in **Documentation** mode, if necessary.

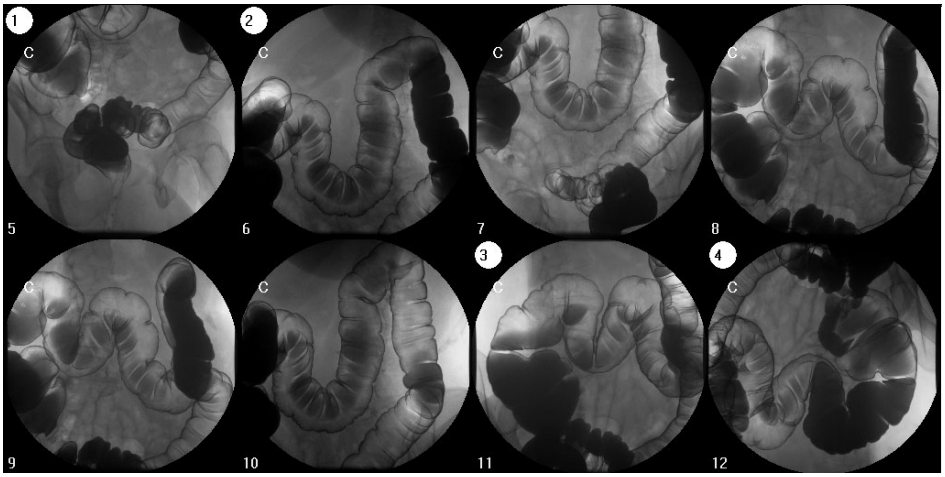
✧ Click on this icon.

IR control

✧ Press the **Mark Image** button on the infrared remote control.

The images are then marked on the top left with a white circle.

The sequence is indicated by numbers in the white circles.



Note

If you click a series, all the images of the series are marked.

If you only want to mark individual images of a series,

✧ Double-click on the series symbol,

✧ Mark the images you want from the series,

✧ Click on the **Documentation** tab to return to the overview page.

Marking all images

✧ Click on the **Select** tab in **Documentation** mode, if necessary.

✧ Click on this icon.
– All images of the study are marked.

Unmarking all images

✧ Click on the **Select** tab in **Documentation** mode, if necessary.

✧ Click on this icon.
– The marks are removed from all images of the study.

Putting images together to form a twinview layout

If you want to combine two images to form a layout, you can use the following layout functions:

The twinview layout *vertical* permits display of two image slices side by side.

The twinview layout *horizontal* permits display of two image slices one above the other.

You can prepare the images to save space and concentrate on the organ of interest for hardcopy on film.

Note

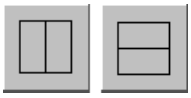
Representatives of series displayed in the overview page and stored twinview images cannot be selected for twinview.

Note

For Twinview images only patient name, label, image number and window values are printed on the film.

Starting twinview

✧ Click on the **Select** tab, if necessary.



✧ Click on the required icon.

✧ Move the mouse cursor into the image area.
– The mouse cursor takes the shape of the word “Co”.

✧ Click on the two images you want to display.
– The two selected images are displayed centered in twinview layout.
– The mouse cursor takes the shape of two crossed arrows.

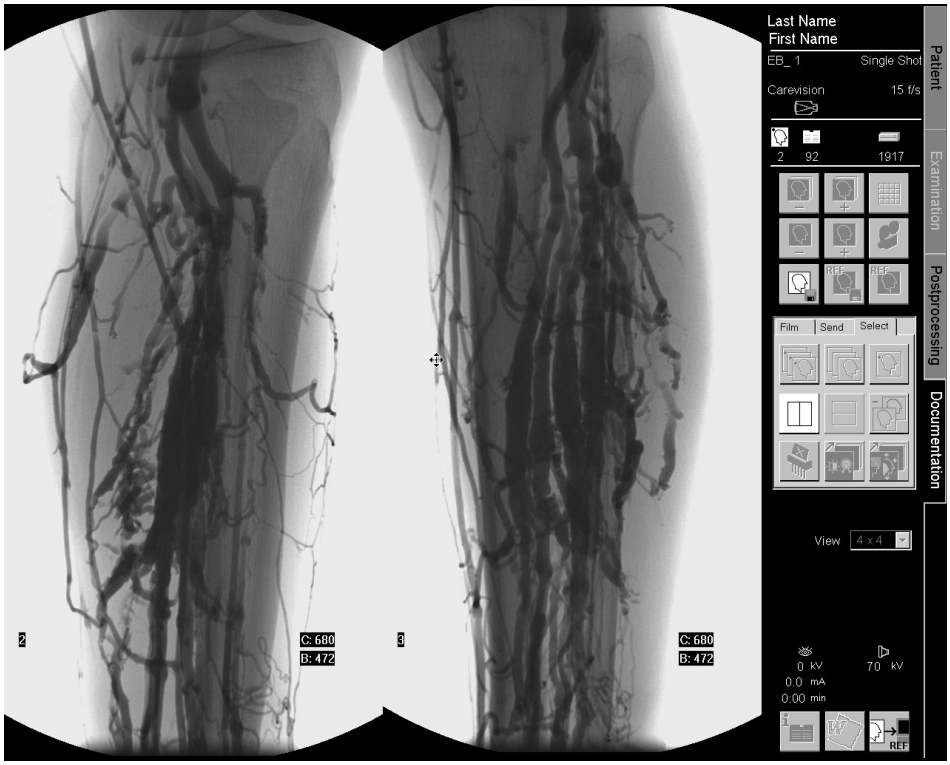
Panning and windowing the twins

For each image you can now move the image section with the *left* mouse button (Pan):

✧ Click with the *left* mouse button in an image and move it as required.

You can also set the window values (brightness ↔ and contrast ↕) with the *right* mouse button separately for each image:

✧ Click with the *right* mouse button in an image and set the brightness and contrast as required.



Twinview example

Storing the twinview image

✧ Click on this icon.

Note

Stored twin images cannot be processed.

Printing the twinview image on a paper printer

✧ Press the **Prt Sc** key.
– The image is sent to the configured paper printer.

Subtracting single images (DSA basic)

It is possible to create subtracted images and to perform basic DSA functions like pixelshift and anatomic background (landmark).

Notes

When subtracting single images of a series, the result (image quality) will *not* be the same as a 'real' DSA or Roadmap image. (DSA or Roadmap images have a logarithmic image intensity.)

✧ If you have DSA and if you require a subtracted image, always acquire an image series using a DSA organ program.

It is also possible to subtract *any* images from each other which, in general, *does not make sense*.

✧ Subtract only images of the *same* series.

Note

Representatives of series displayed in the overview page, DSA images and stored twinview images cannot be selected for subtracting.

Starting subtraction

✧ Click on the **Select** tab, if necessary.

✧ Click on this icon.

✧ Click the image you want to subtract from (“fill image”).
– The image is marked with a white frame.

✧ Click the image you want to be subtracted (“mask image”).
– The two selected images are subtracted from each other and displayed.

Panning the “mask” (“pixelshift”)

You can now move the subtracted image (“mask”) with the *left* mouse button.

✧ Click with the *left* mouse button in the image and move it as required.

Or

✧ Use the arrow keys on the keyboard.
– The mask is repositioned accordingly.

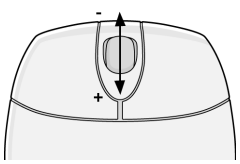
Windowing

You can also set the window values (brightness ↔ and contrast ↕) with the *right* mouse button.

✧ Click with the *right* mouse button in an image and set the brightness and contrast as required.
– The windowing is performed immediately.

Changing the degree of subtraction (“anatomic background”)

You can also change the portion of the subtracted image.



✧ Rotate the wheel of the mouse.
– The portion of the mask is increased or decreased.

Storing the subtraction image

✧ Click on this icon.
– The subtraction image is stored as a DSA image.

Printing the subtraction image on a paper printer

✧ Press the **Prt Sc** key.
– The image is sent to the configured paper printer.

Canceling subtraction

✧ Click on this icon.
– The overview page is displayed again.

Applying processing parameters from one image to other images

Images resembling each other can be processed quickly by processing one image and then applying the same parameters to other images.

The following processing parameters can be applied:

❑ Zoom in/out

❑ Pan position

❑ Shutter position

Or

❑ Window values

❑ Edge enhancement filter

❑ Harmonization (native images only)

See also *Postprocessing images on the virtual film sheet* on page 169

Caution

Applying processing parameters to other images

Risk of error in diagnosis caused by loss of displayed image information

You are responsible to process the images correctly.

✧ Check the correct image processing in **Postprocessing** mode, if necessary.

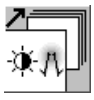
Processing the “master” image

✧ Process the image best suitable.
Postprocessing on page 114ff

✧ Click on the **Select** tab in **Documentation** mode, if necessary.

✧ Click the “master” image.
– The image is marked with a white frame.

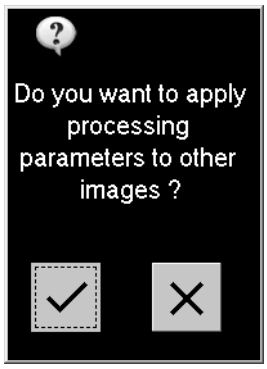
Applying window and edge enhancement filter values



✧ Click on this icon.

Applying zoom/pan/shutter

✧ Click on this icon.



A window appears.

✧ Click the images on which processing parameters should be applied.
– The images are marked on the top right with a white square.

✧ Click on the OK icon.
– The selected image(s) are processed in the same way as the original image.
– The new state of the image(s) is stored.

Canceling

✧ Click on the cancel icon.

Transferring/Archiving images to DICOM

General information on DICOM Send

With DICOM Send you can transfer images within a network to one, or up to three, target computers at a time.

Note

Information on Chinese user interface:

When using DICOM Send, the regional settings for input must be configured in English and the patient data must be entered in English in order to be able to transfer patient data correctly.

DICOM Print is not affected.

Destinations

The available destinations for transfer are configured on installation in service mode.

✧ If you want to change these destinations or add new destinations, please consult your system administrator or Siemens Service.

Archive

Exactly one destination can be configured as the archive.

The images sent to the archive are 12 bit and fully processed.

Transfer format

The image formats for transfer are also configured on installation in service mode.
Transfer formats on page 160

Fluoro matrix size

You can configure in which matrix size (1k² or 0.5k²) fluoro loops will be transferred to DICOM.
Store on page 198

Autosend

It is possible to configure a host where images are automatically sent to when the following conditions are set:

- ❑ An **Autosend Target** has been configured
  DICOM properties on page 197
- ❑ **Mark Image** has been configured in the fluoroscopy and/or acquisition program
  Setting parameters for fluoroscopy/roadmap on page 93
  Setting parameters in organ programs on page 96

If configured, images are sent automatically to the predefined target once they are acquired or marked.

Autosend is done in background.

The send status is displayed in the status line of the **Patient** mode.

Flags

- ❑ When an image has been successfully transferred, it will be marked with the Sent flag.
  Data in the study lists on page 53
- ❑ When an image has been successfully transferred to a destination which has been configured as the archive (and this server supports storage commitment), the image will be marked with the Archived flag.

Caution

Network connection failed

Risk that images are lost

✧ Always check transmission.

✧ Restart transfer, if necessary.

Note

When a network connection fails during a transfer, the flags (storage commitment) cannot be set.

In this case, you must restart the transfer after the network connection is up again or check the commitment status manually.

Updating the study status on page 68

The waiting time for storage commitment can be configured. ⇨ page 197

The commitment can be done manually. ⇨ page 68

Transfer formats

Each of the various image formats for archiving/storage supports different image information. Therefore, depending on the selected format, not all image information might be stored, i.e. you don't have the same state after restoring than before storage.

Note

Image header and pixel information is restricted to the DICOM standard.

Especially when storing in the DICOM SC format, the following information will get lost:

- ❑ in the image: kV, mAs
- ❑ in the study report: Dose area product (accumulated), Fluoro time (accumulated), Cu filter and I.I. format

Image formats

The following image formats are supported by the FLUOROSPOT Compact:

Image format	via CD/ DVD	via network	Advantages/Disadvantages
Packed (Siemens format)	Yes	No	Full information
DICOM SC (Secondary Captures)	Yes	Yes	Image graphics is "burnt-in"; not all image parameters are stored (e.g. no kV, mAs); Series are converted to single images.
DICOM XRF/XA	Yes	Yes	Series are stored as multiframes; the image parameters are retained.
DICOM XRF/XA Full (Multiframes)	Yes	Yes	DSA series are transferred as non-processed multiframes, i.e. they can be postprocessed further.
TIFF, **AVI**	Yes	No	Only pixel image with "burnt-in" graphics; reduced color information (8 bits)

Note

Images stored in TIFF or AVI format cannot be restored to the FLUOROSPOT Compact imaging system.

Images in JPEG or other formats also cannot be imported to the FLUOROSPOT Compact imaging system.

Transfer problems

Zoomed images after restoring them via network or from CD

In the **DICOM XRF/XA** format, images are generally sent/archived unzoomed.

For this reason, originally zoomed images will be displayed unzoomed after restoring them via network or from CD.

This does not apply to images, which are sent/archived in the **DICOM SC** format

Recommendation:
When an image is to be displayed zoomed on the FLUOROSPOT Compact imaging system after restoring it via network or from CD:

✧ Save the (zoomed) image as a **Store Monitor** image *before* sending/archiving it.

Retrieved “bones white” images are displayed “bones black”

If images in “bones white” have been retrieved, they are displayed “bones black”.

✧ Click on this icon on the **Process.** subtask card in **Postprocessing** mode.

Do NOT delete single images/series when a transfer is active

When a study or marked images/series are being transferred the study in concern is protected from occasional deleting, but single images/series are *not* protected.

This means that single images/series *can* be deleted although they haven’t been transferred (completely).

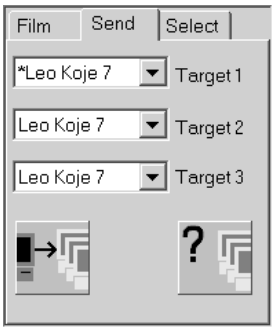
✧ Before deleting, wait until any pending transfers in the background are completed (transfer icon on the lower right-hand of the screen has disappeared).

Transferring images (DICOM Send)

Please note *General information on DICOM Send* on page 159, *Transfer problems* on page 161 and *Transfer formats* on page 160

✧ Mark the images to be transferred⇨ page 153.

✧ Click on the **Send** subtask card, if necessary.



Note

The archive node is indicated by an asterisk * .

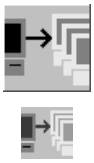
✧ Select a target from the first list.

✧ Select a target from the second list, if necessary.

✧ Select a target from the third list, if necessary.

Note

Your selection will be preserved when you next call the **Send** subtask card.



✧ Click on this icon.
– The images are sent to the selected target(s) in the background.

– During transfer, an icon displayed bottom right (below the tabs), indicates the running transfer process.
Managing image transfers / Status display on page 170

Checking the archive/send status

The storage commitment status for each image sent to an archive is displayed in the last column of the **DICOM Send** tab card of the status dialog.

Note

You can recheck if the image is stored in the archive, use the manual storage commitment function in **Patient** mode.

Updating the study status on page 68

Transferring images for hardcopy/filming (DICOM Print)

It is possible to connect a digital hardcopy camera to the FLUOROSPOT Compact imaging system.

Destinations

The available hardcopy cameras are configured on installation in service mode.

✧ If you want to configure another camera or change the camera configuration, please consult Siemens Service.

Flags

When an image has been successfully transferred for filming, it will be marked with the **P** (Printed) flag.
Data in the study lists on page 53

Caution

Hardcopy connection failed

Risk that images are lost

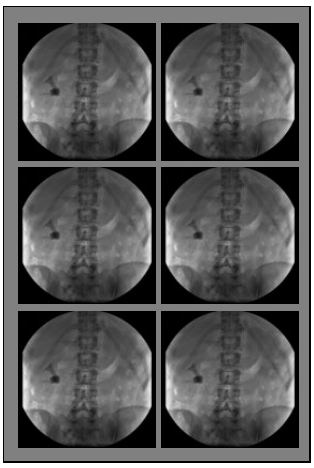
✧ Always check transmission.

✧ Restart transfer, if necessary.

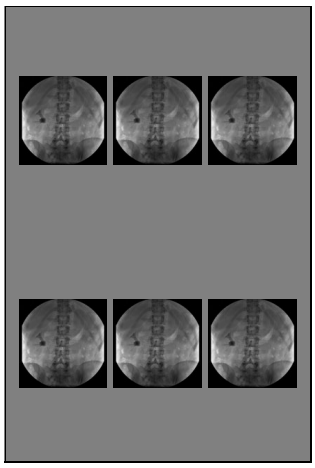
Film layouts

The available film layouts depend on the hardcopy camera currently configured.

Please note that using certain film layouts in general makes no sense for square images. For example, in portrait mode, **2x3** (columns x rows) may be a good choice but **3x2** (columns x rows) is not:



2x3 layout in portrait mode



3x2 layout in portrait mode: small images and unused space

Example

1x1	**1x2***	**1x3***
2x1†	2x2	**2x3***
3x1†	**3x2**†	3x3

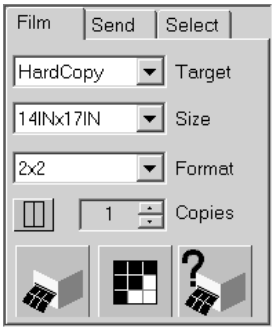
* should not be used in landscape mode

† should not be used in portrait mode

Performing hardcopy

✧ Mark the images in the order you want to expose them. ⇨ page 153

✧ Click on the **Film** subtask card, if necessary.



✧ Select the target camera.

✧ Select the film size/orientation.

✧ Select the film layout (**Format**).

✧ Select the number of copies to be exposed, if necessary.

Note

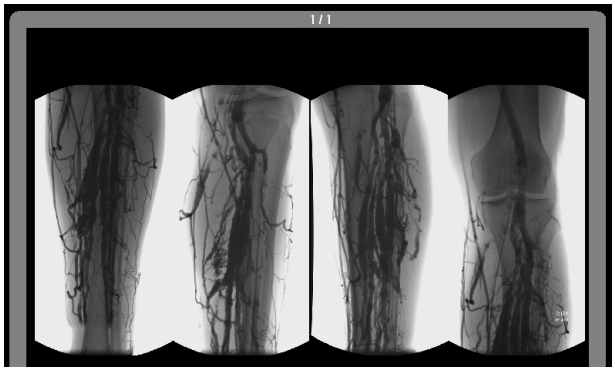
Check the actual exposure and the film sheet subdivision at the hardcopy camera remote control.

See the operator manual for the ***hardcopy camera***.

Economizing film sheets with composed format

If two or more images have been marked it is possible to expose the images in pairs:

✧ Click on this icon.
– Each two images are exposed on one image position.



Starting hardcopy

✧ Click on this icon.
– The images are sent to the selected hardcopy camera in the background.

– During transfer, an icon displayed bottom right (below the tabs), indicates the running transfer process.
Managing image transfers / *Status display* on page 170

Film preview (virtual film sheet)

Before sending the images to the hardcopy camera, you can check the film layout:

✧ Click on this icon.
– A preview of the film layout is shown (*virtual film sheet*).
– The last film sheet is displayed.

Note

The preview function is possible for most DICOM formats but not possible for some special formats (e.g. custom or slide formats).

If you have selected one of this formats, preview is not possible and is disabled.

However, you can use these formats anyway.

Printing the preview on a paper printer

✧ Press the **Prt Sc** key.
– The hardcopy preview is sent to the configured paper printer.

Changing settings

✧ Change the film format (layout), if necessary.

✧ Change the number of copies to be exposed, if necessary.

Starting hardcopy

✧ Click on this icon.
– The images are sent to the selected hardcopy camera in the background.

– During transfer, an icon displayed bottom right (below the tabs), indicates the running transfer process.
Managing image transfers / *Status display* on page 170

Closing the preview

✧ Click on this icon.

Paging film sheets

Previous page

✧ Click on this icon or

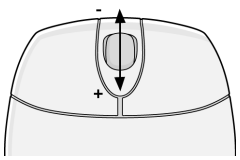
✧ press the **Page Up** or ← or ↑ key on the keyboard.

Next page

✧ Click on this icon or

✧ press the **Page Down** or ← or ↑ key on the keyboard.

Or



✧ Rotate the wheel of the mouse.
  – The next page up/down is displayed at each position of the wheel.

First page

✧ Press the **Home** key on the keyboard.

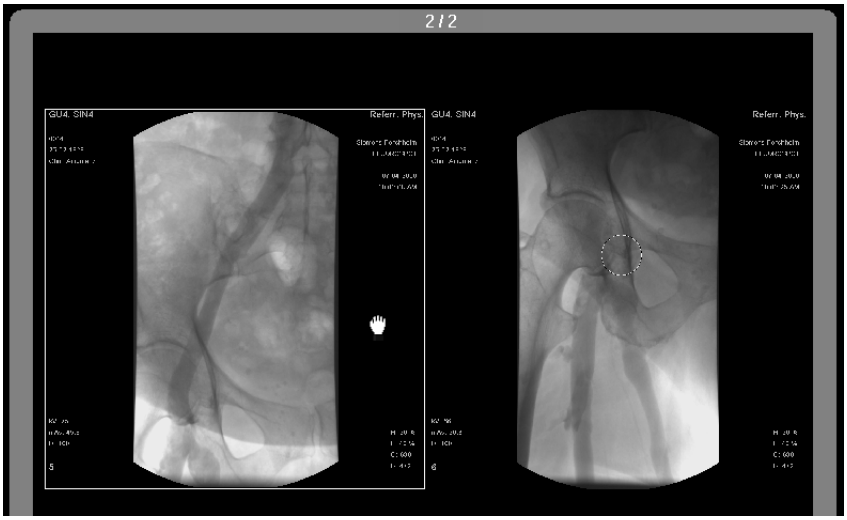
Last page

✧ Press the **End** key on the keyboard.

Repositioning images on a film sheet

✧ Click the image to re-position and hold the mouse button pressed.
  – The image is marked with a white frame.
  – The cursor changes to a little hand.

✧ Drag the image to the required position and release the mouse button.

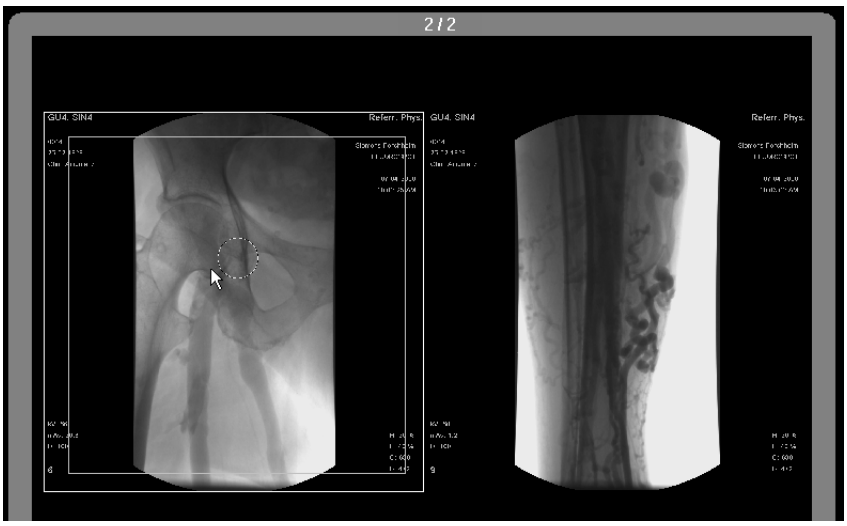


– The moved image is inserted to the dragged position.
– All images in between move up.

Moving an image from one film sheet to another

✧ Click the image to move.
– The image is marked with a white frame.

✧ Press the **Del** key on the keyboard.
– A second frame appears.



✧ Select the required film sheet. ⇨ page 167

✧ Click the image at the required position.
– The image is marked with a white frame.

✧ Press the **Ins** key on the keyboard.
– The image to move is inserted at this position.
– All images in between move up.

Postprocessing images on the virtual film sheet

It is possible to adjust some processing parameters directly on the film sheet, e.g. to adopt brightness and contrast of images to each other.

The following processing parameters can be changed:

- ❑ Zoom in/out
- ❑ Pan
- ❑ Invert
- ❑ Shutter
- ❑ Window
- ❑ Flip
- ❑ Filter

Caution

Processing images on the virtual film sheet

Risk of error in diagnosis caused by loss of displayed image information

You are responsible to process the images correctly.

✧ Check the correct image processing in **Postprocessing** mode, if necessary.

Note

Any modification of the image remains until the next modification will be done.

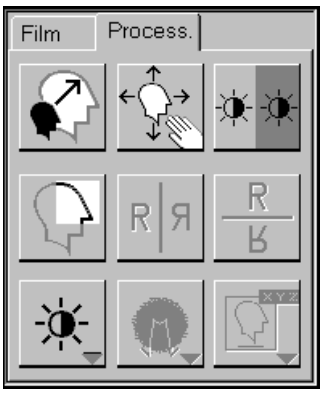
If an image of a series is modified on the virtual film sheet, any modification is valid only for the modified image and not for all images of the series.

In contrary, modifying an image of a series in **Postprocessing** mode will apply the modification to all images of the series.

Processing images

✧ Click the image to be processed on the virtual film sheet.

✧ Click on the **Process.** subtask card, if necessary.

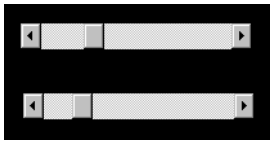


Processing subtask card in **Documentation** mode

✧ Select the required function.

✧ Proceed as described elsewhere.

Please refer to *Postprocessing* on page 114ff



Note

All modifications on the film sheet can *only* be done using the associated sliders below the **Process.** subtask card.

Managing image transfers / Status display

All image transfers run in the background.

Status icon

During a transfer job, icons are displayed bottom right (below the tabs), indicates the running transfer process.

Status page

For each licensed transfer feature, a status page is available.

Status icon	Status page	Description
	DICOM Film	Status of transfer to a DICOM hardcopy camera
	DICOM Send	Status of transfer via network (DICOM)
	CD read	Status of transfer from a CD
	CD write	Status of transfer to a CD-R
	Import	Status of retrieve

Transfer process

As soon as you start a transfer process (send, hardcopy or CD transfer), the images are prepared for transfer.

Note

During acquisition, the transfer preparation process is interrupted.

When the preprocessing process is complete, each image is sent separately one after the other. The transfer status is updated for each image.

Automatic deletion

Transfer jobs which have been successfully completed are kept in the status lists. When a specified number of completed transfer job entries is exceeded, the oldest entries will be deleted (first in, first out). The transfer types (**DICOM Send**, **DICOM Film**) can have different limits.

Automatic retries

Non-successful transfer attempts are automatically retried with maximum 5 trials. The time gap between the retries is configurable between 0 and 5 to 180 minutes in service mode (0 means no retries).

Displaying a status page during transfer

✧ Click on the status icon (bottom right, below the tabs).

Displaying a status page

✧ Click on the **Settings** tab in **Patient** mode, if necessary.

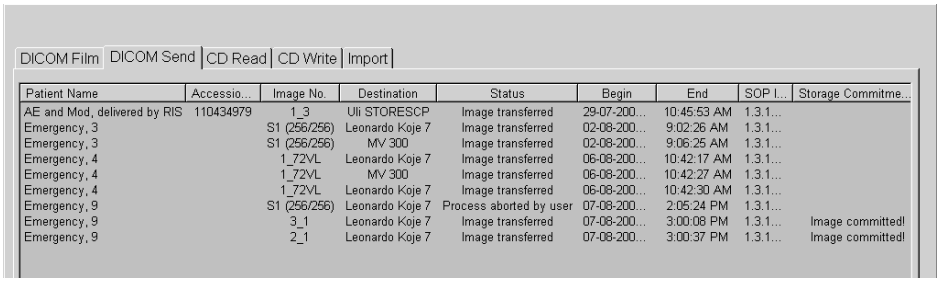
✧ Click on this icon.

Or

✧ Click on the **Select** tab in **Documentation** mode, if necessary.

✧ Click on the required icon for hardcopy or network transfer status.

The corresponding status page is displayed.


DICOM Film
DICOM Send
CD Read
CD Write
Import
Patient Name | Accessio... | Image No. | Destination | Status | Begin | End | SOP I... | Storage Commitme...
AE and Mod, delivered by RIS | 110434979 | 1_3 | Uli STORESCP | Image transferred | 29-07-200... | 10:45:53 AM | 1.3.1...
Emergency, 3 | | S1 (256/256) | Leonardo Koje 7 | Image transferred | 02-08-200... | 9:02:26 AM | 1.3.1...
Emergency, 3 | | S1 (256/256) | MV 300 | Image transferred | 02-08-200... | 9:06:25 AM | 1.3.1...
Emergency, 4 | | 1_72VL | Leonardo Koje 7 | Image transferred | 06-08-200... | 10:42:17 AM | 1.3.1...
Emergency, 4 | | 1_72VL | MV 300 | Image transferred | 06-08-200... | 10:42:27 AM | 1.3.1...
Emergency, 4 | | 1_72VL | Leonardo Koje 7 | Image transferred | 06-08-200... | 10:42:30 AM | 1.3.1...
Emergency, 9 | | S1 (256/256) | Leonardo Koje 7 | Process aborted by user | 07-08-200... | 2:05:24 PM | 1.3.1...
Emergency, 9 | | 3_1 | Leonardo Koje 7 | Image transferred | 07-08-200... | 3:00:08 PM | 1.3.1... | Image committed!
Emergency, 9 | | 2_1 | Leonardo Koje 7 | Image transferred | 07-08-200... | 3:00:37 PM | 1.3.1... | Image committed!

Note

When releasing radiation the status window is closed automatically.

Starting a job once again

You can restart an image transfer which has not been completed:

✧ Select the image(s) in the appropriate transfer list (using the **Shift** key).

✧ Click on **Film** or **Send**.

Redirecting a DICOM send job

If more than one target is configured in the system, you can redirect images of a DICOM send job:

✧ Select the image(s) in the appropriate transfer list.

✧ Select the new target(s).

✧ Click on **Redirect**.

Canceling a job

You can cancel any image transfer:

✧ Select the image(s) in the appropriate transfer list.

✧ Click on **Abort**.

Deleting entries

Note

Please check that the images have been successfully transferred *before* you delete them.

✧ Select one or more entries in the list.

✧ Click on **Clear List**.
– The selected entries are deleted from the list.
– If no entry has been selected, the whole list will be deleted.

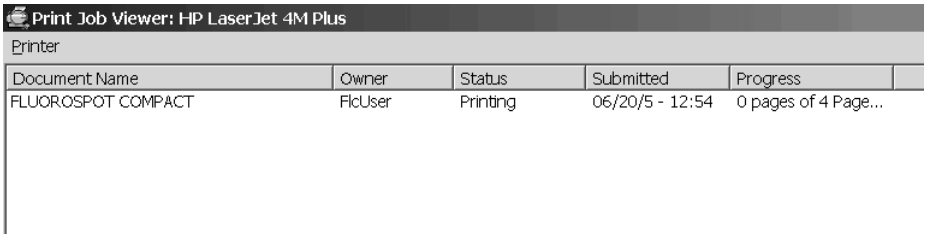
Closing the status window

✧ Click on **Close** or click on the icon again.

Managing print jobs / Status of paper printer

Display status

✧ Press the **Pause** key on the keyboard in **Patient** mode.
– The status window for the paper printer is displayed.



Updating the list

✧ Select **Printer > Refresh** in the menu.

Closing the status window

✧ Select **Printer > Exit** in the menu.

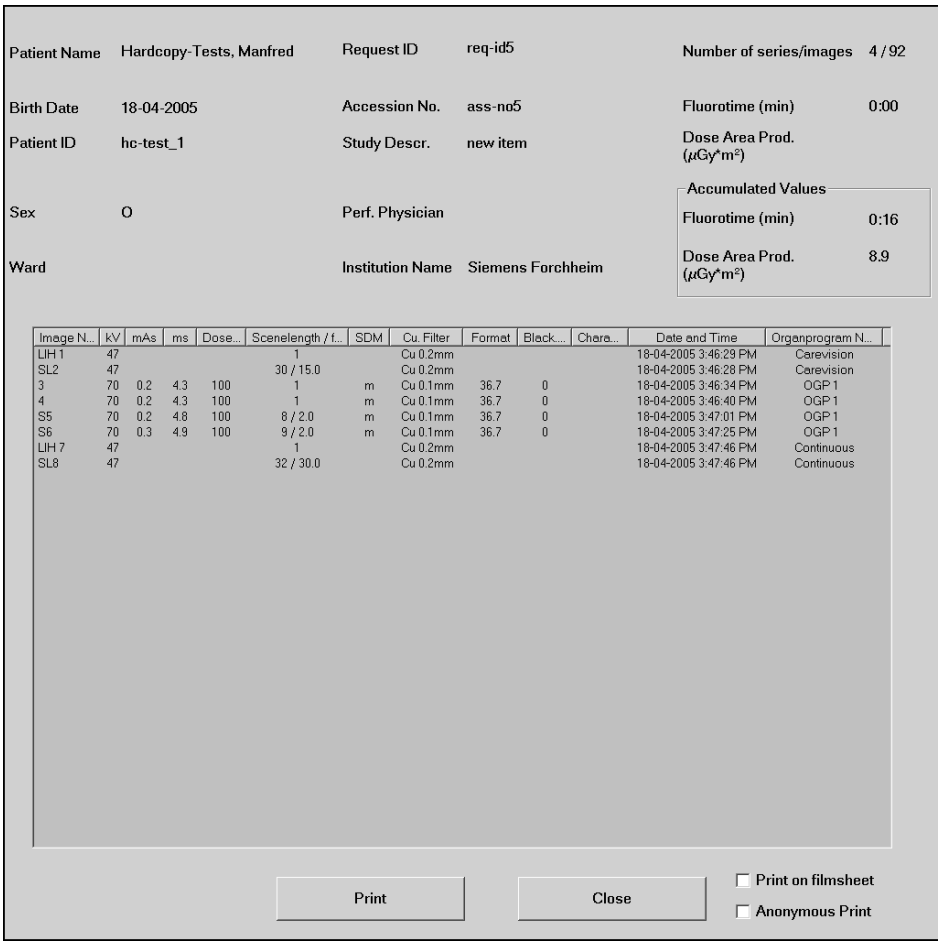
Or

✧ Click on the close button in the top right-hand corner.

Displaying the study report

All fluoroscopy and acquisitions performed on a patient are logged in the study report.

✧ Click on this icon.
– The study report is displayed.


Patient Name
Hardcopy-Tests, Manfred
Request ID
req-id5
Number of series/images
4 / 92
Birth Date
18-04-2005
Accession No.
ass-no5
Fluorotime (min)
0:00
Patient ID
hc-test_1
Study Descr.
new item
Dose Area Prod. (µGy*m²)
Accumulated Values
Sex
O
Perf. Physician
Fluorotime (min)
0:16
Ward
Institution Name
Siemens Forchheim
Dose Area Prod. (µGy*m²)
8.9
Image N... kV mAs ms Dose... Scenelength / f... SDM Cu. Filter Format Black... Chara... Date and Time Organprogram N...
LIH 1 47 1 Cu 0.2mm 18-04-2005 3:46:29 PM Carevision
SL2 47 30 / 15.0 Cu 0.2mm 18-04-2005 3:46:28 PM Carevision
3 70 0.2 4.3 100 1 m Cu 0.1mm 36.7 0 18-04-2005 3:46:34 PM OGP 1
4 70 0.2 4.3 100 1 m Cu 0.1mm 36.7 0 18-04-2005 3:46:40 PM OGP 1
S5 70 0.2 4.8 100 8 / 2.0 m Cu 0.1mm 36.7 0 18-04-2005 3:47:01 PM OGP 1
S6 70 0.3 4.9 100 9 / 2.0 m Cu 0.1mm 36.7 0 18-04-2005 3:47:25 PM OGP 1
LIH 7 47 1 Cu 0.2mm 18-04-2005 3:47:46 PM Continuous
SL8 47 32 / 30.0 Cu 0.2mm 18-04-2005 3:47:46 PM Continuous
Print
Close
Print on filmsheet
Anonymous Print

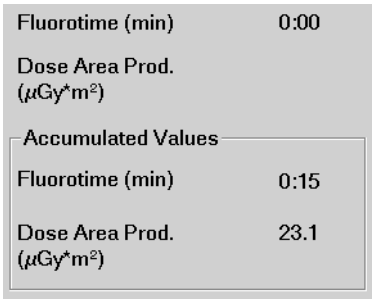
Study data

In the upper left-hand corner of the report patient and study data are displayed.

Fluoro time and dose data

In the upper right-hand corner of the report the accumulated fluoro time and the dose area product (if a dose recording equipment is installed) are displayed:

❑ **Number of series/images**: Number of acquired series/images



- **Fluorotime**: Expired time of fluoroscopy since the last reset
- **Dose Area Prod. (µGym²)**: Current dose value

Accumulated Values:

- **Fluorotime (min)**: Total time of fluoroscopy of the study
- **Dose Area Prod. (µGym²)**: Accumulated dose value of the study

Accumulation is done when the study is deselected or when the values are reset.
Reset of the fluoroscopy signal on page 84

Note

The accumulated values are also displayed in the work list data.

Displaying the work list data on page 54

SDM data

For **SDM** (Selective Dominant Measurement), the following characters are displayed:

Dominant	SDM display
Circular	C
Left	l
Middle	m
Left/Middle	lm
Right	r
Left/Right	lr
Right/Middle	rm
Left/Middle/Right	lmr

Printing the study report on a paper printer

✧ Click on **Print**.

Closing the window

To return to **Documentation** mode,

✧ Click on **Close**.

Including the study report on film

It is possible to include the fluoro time and dose data on every last film sheet exposed.

☐ Print on filmsheet

✧ Click **Print on filmsheet** to activate the check mark.
  – With each exposure a report is generated containing study related information.
  – This information is added as the last image of the study in the film preview and transferred as the last image to each film exposure to the hardcopy camera.

Anonymous printing

It is possible *not* to print personal information of the patient.

☐ Anonymous Print

✧ Click **Anonymous Print** to activate the check mark.

Creating/editing a medical report

For documentation and referring purposes you can write a medical report using Microsoft Word®.

Note

Only one medical report can be generated per study.

The medical report is stored with the images on CD-R.

The text of the medical report will be kept in a separate text file when the study is deleted. It can be displayed in **Patient** mode (worklist data).

The existence of a medical report is indicated in the **Examined Patients** list with a plus sign "+" after the number of images.

Creating/editing a medical report

✧ Click on this icon (bottom right).
– A window appears.

✧ Click one or more images (up to 10) you want to include in your medical report.

✧ Click on the OK icon.
– Microsoft Word® appears using the prepared template for the medical report.

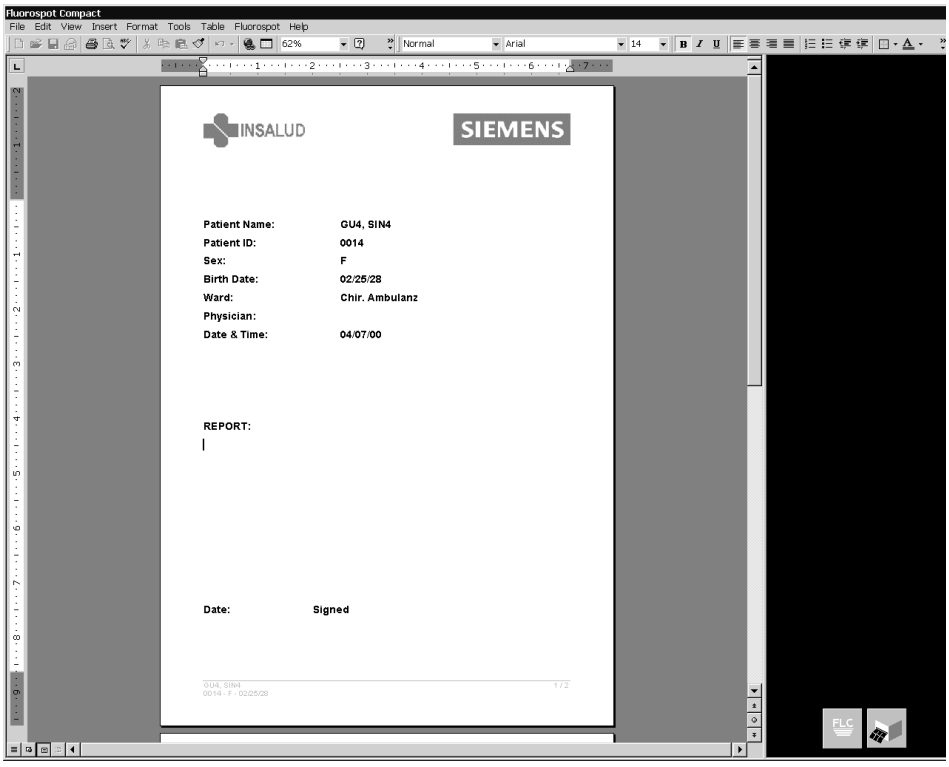
Note

Please ask the Siemens Customer Service to adapt the Microsoft Word® template to your purposes (address, logo, ...).

Note

Images *must not be moved* in the medical report.

If you do so, Microsoft Word® may crash.



Example

Patient data is automatically included.

The selected image(s) is (are) included on the following page(s).

Fluorospot Compact
File Edit View Insert Format Tools Table Fluorospot Help
INSALUD
SIEMENS
This paperprint of image is not valid for diagnosis

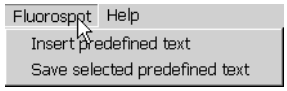
✧ Enter your report on the first page.

For instructions using Microsoft Word® please refer to the Microsoft Word® documentation.

Finishing the medical report

Saving a text macro

✧ Mark the text you want to save.

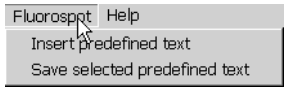


✧ Select **Fluorospot > Save selected predefined text** in the menu.

✧ Select a directory and enter a file name.

✧ Click on **Save**.

Inserting a text macro



✧ Select **Fluorospot > Insert predefined text** in the menu.

✧ Select a directory and a file.

✧ Click on **Open**.

Clearing the medical report

✧ Mark the text/image(s) to delete.
– The marked text and/or images are displayed inverted.

✧ Press the **Del** key.
– The marked contents of the Word® template is removed.

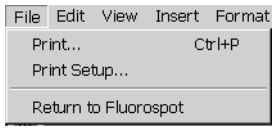
Printing the medical report on a paper printer

✧ Click on this icon (bottom right).

Or

✧ Click on this icon (in the tool bar).

Or

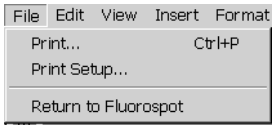


✧ Select **File > Print** in the menu.

Saving and closing the medical report

✧ Click on this icon (bottom right).

Or



✧ Select **File > Return to Fluorospot** in the menu.
– A dialog prompts you to save the file.

✧ Click **Yes** to save.

Note

If you click **Yes**, the medical report is stored even if it contains only “nonsense”.

✧ Clear the medical report if you don’t want to have its contents.

Clearing the medical report on page 178

Deleting images or series

You can delete any individual images or series of a study.

Caution

Deleting images or series which are being archived

Risk that images are lost

It is not possible to restore any unarchived image data which have been deleted.

✧ Ensure that the data arrived correctly on the archive media *before* deleting.
The image data must be readable.

Caution

Deleting images which are being sent to a hardcopy camera

Risk that images are lost on the hardcopy line

It is not possible to restore any unarchived image data which have been deleted.

✧ Have a look on the hardcopy *before* deleting images.
The image must have been printed well.

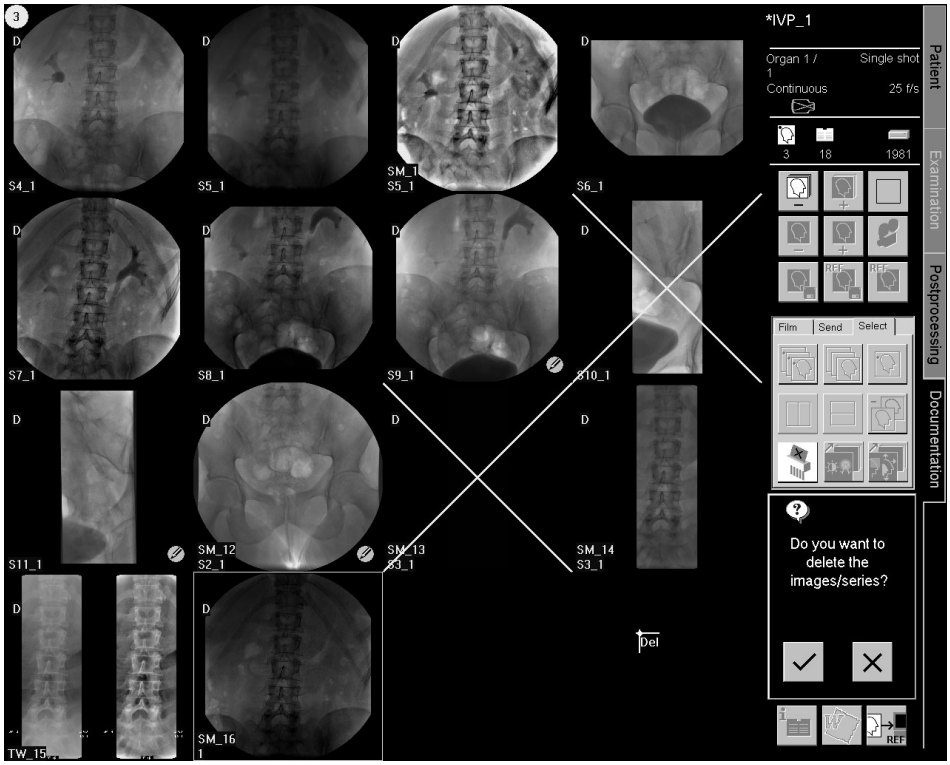
✧ Click on the **Select** tab in **Documentation** mode, if necessary.

✧ Click on this icon.
– A window appears.

✧ Move the mouse cursor into the image area.
– The mouse cursor takes the shape of the word “Del”.

Selecting images

✧ Click on the images you want to delete one after the other.
– The images are marked with a white cross.



Note

You can deselect an image by clicking on it again.

Selecting images in turn (in series overview only)

✧ Click on the first image you want to delete.

✧ Press the **Shift** key on the keyboard and hold it pressed.

✧ Click on the last image you want to delete.
– The images in between are marked with a white cross.

Note

It is not possible to delete all images of a study.

Note

In a DSA series, the mask image cannot be deleted.
(It will not be marked for deletion.)

Deleting

It you want to delete the images marked with a cross:

✧ Click on this icon.
– The images/series are deleted from the hard disk.

Storing on and reading from CD-R

Please note *Transfer problems* on page 161 and *Transfer formats* on page 160

Notes on handling CDs

Recordable CDs

Recordable CDs (CD-R = CD recordable) are similar to music CDs.

Siemens offers CD-Rs especially designed for medical applications.

✧ Please ask your local sales representative.

Handling

CD-Rs are more sensitive than music CDs. The data recorded on a CD is also more sensitive to external influences than, for example, digitized music.

✧ Only grasp CD-Rs by the edge or the label side.

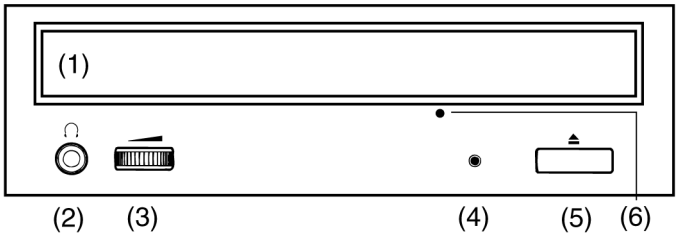
✧ Always keep CD-Rs in their container so that they do not become dirty or scratched.

✧ Only write on CD-Rs on the labeling side using a soft, solvent-free felt-tip pen.

✧ Do not allow CD-Rs to come into contact with the effects of heat (e.g. heating) or direct sunlight.

CD drive

On the drive, there is an ejection button and an LED which shows the status of the drive.



CD drive (example)

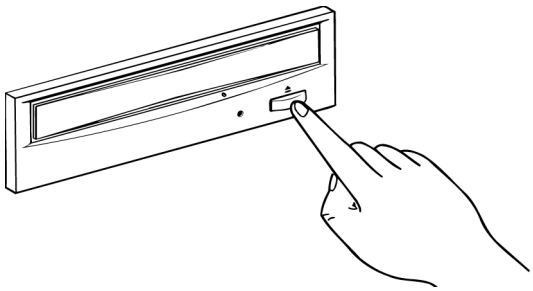
(1) Carriage for inserting the CD

(2) Headphone socket (is not used).

(3) Volume control (is not used).

(4) Status indication LEDs

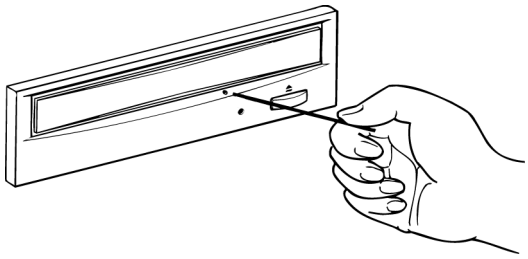
– READ/WRITE (green) lights up during a read process.
– READ/WRITE (orange) lights up during a write process.



(5) Eject button, for removing the CD from the drive.

Note

During a read/write operation this function is blocked by the software. During this time the button has no function.



(6) Emergency eject: Can be used to remove the CD in case of an emergency (drive failure).

Note

You should only attempt to eject a CD manually as a last resort.

Malfunctions may occur if you do this too frequently.

To do this:

✧ Switch off the system.
Switching on/off on page 43

✧ Find a pin-like tool with a diameter of 2 mm or less (e.g. an opened-out paper-clip) and fit it into the hole.

✧ Press the tool gently until the spring-loaded mechanism ejects the tray with the CD.

Inserting and removing CDs

Inserting a CD

✧ Push the eject button on the CD drive.
– The carriage moves out.

✧ Take the CD out of the protective sleeve and place it in the carriage (label side of the CD facing upwards).

✧ Push the eject button again.
– The carriage retracts with the CD into the drive.
– The CD is ready after a few seconds.
(LED on the drive no longer flashes.)

Note

Insert the CD *before* selection of a CD read or CD write operation!

Removing the CD

✧ Wait until any read or write operations are completed.
(LED on the drive no longer flashes.)

✧ Push the button on the CD drive.
– The carriage with the CD is pushed out.

✧ Take the CD out and put it back in its protective sleeve.

Note

Remove the CD *after* you have finished a CD read or CD write operation!

Do not change CDs *while* a CD read or CD write operation is active.

Displaying the study list of a CD

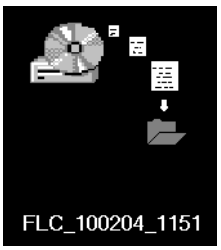
You can read CD-Rs that were created with a FLUOROSPOT Compact system or DICOM CDs using a supported format.
Transfer formats on page 160

✧ Insert the CD into your drive.
– The cursor indicates that the CD is read.

✧ Wait a moment (until the LED on the CD-R drive stops blinking).

✧ Click on the **Patient** tab, if necessary.

✧ Click on this icon.
– The study list of the CD is displayed.



Note

When the study list of a CD is displayed, information about the CD appears in the upper right-hand corner.

Each CD has an unique CD volume number, for example:
FLC_100204_1151

Note

The **Format** column indicates the format of the images stored on the CD.

Unreadable CD

If a CD cannot be read because a damaged or an empty CD-R was inserted, for example, the cursor indicates the CD symbol *up to a minute*. The system is blocked, if the CD read icon has been clicked.

✧ Wait or press the eject button on the drive and remove the CD.

Printing the CD study list on paper

In order to print the study list of a CD on paper, a study entry must be selected.

✧ Click a study entry on the **CD List**.

✧ Press the **Prt Sc** key.

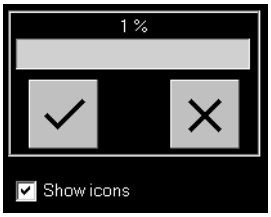
Displaying image icons

You can display an image preview of a study.

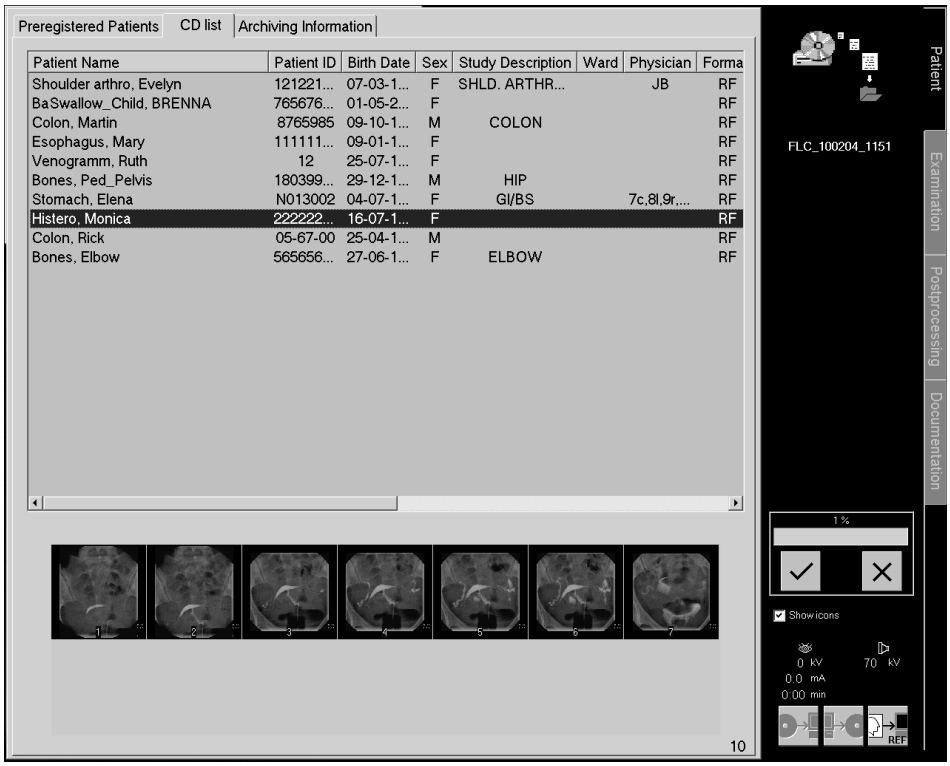
Note

Display of image icons can take some time depending on the number of images.

✧ Click the required study.



✧ Click the **Show Icons** check box.
– The image icons are created.



Transferring data from a CD to the system

Note

Only image data in supported formats can be read into the FLUOROSPOT Compact imaging system.

See also *Transfer formats* on page 160

Note

It is *not* possible to import jpeg images created on other systems, e.g. on a *syngo* Workplace, to the FLUOROSPOT Compact.

If you never the less try to import jpeg images from CD-R, nothing happens, no message is displayed either.

The jpeg images of a patient will *not* be imported.

Note

Transfer from CD can take some time depending on the volume of data.

The transfer is performed in the background, so the imaging system can be used for other purposes during this time.

If you want to transfer studies from a CD to your local hard disk to review them, for example:

✧ Insert the CD into your drive.

✧ Wait a moment (until the LED on the CD-R drive stops blinking).

✧ Click on the **Patient** tab, if necessary.

✧ Click on this icon.
– The study list of the CD is displayed.

Note

If you change a CD during a CD read operation, display of data may be wrong.

Do not change CDs *while* a CD read operation is active.

Select the study/studies to be transferred in the study list of the CD:

One study

✧ Click on the study to be transferred.
– The entry is displayed inverted.

Two or more studies

✧ Click on the first study to be transferred.

✧ Press the **Ctrl** key and click on the other studies you want to transfer.
– The entries clicked are displayed inverted.

A series of contiguous studies

✧ Click on the first study you want to transfer.

✧ Press the **Shift** key and click on the last study you want to transfer.
– This and all the entries in between are displayed inverted.

All studies

✧ Press the keys **Ctrl** + **A**.
– All study entries are displayed inverted.

The storage capacity still available on the hard disk and the storage capacity required are both displayed.

Note

It is only possible to select studies for which there is enough storage capacity on the hard disk.

If a selected study already exists on the hard disk a message is displayed.

Starting transfer

✧ Click on the OK icon to start the transfer from the CD to the hard disk.
– The data is transferred in the background.
– The **CD List** is closed, the **Examined Patients** list is displayed again.
– During transfer, an icon displayed bottom right (below the tabs), indicates the running transfer process.
– When the transfer is finished, the **Examined Patients** list is updated automatically.
Managing image transfers / *Status display* on page 170

Note

If you open the **CD list** again while a transfer process is running, a progress bar is shown indicating the status of the transfer process.

Canceling transfer

✧ Click on this icon.
– The **CD List** is closed, the **Examined Patients** list is displayed again.

Storing on CD-R

To make sure that there is always enough storage space on the hard disk and/or to store digitally generated acquisitions permanently, you can save the data of your hard disk on a CD-R with the archiving feature.

Note

Information on Chinese user interface:

Chinese patient data can only be stored and read correctly in **Packed** format.

When using a DICOM format, the regional settings for input must be configured in English and the patient data must be entered in English in order to be able to store and read Chinese patient data correctly.

Note

Transfer to CD-R can take some time depending on the volume of data.

The transfer is performed in the background, so the imaging system can be used for other purposes during this time.

Note

Always use CD-Rs with *700 MB* capacity!

Do *not* use CD-RWs!

Note

It is possible to write automatically a DICOM viewer on every CD-R.

Please ask Siemens Customer Service.

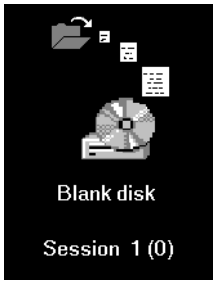
Starting the write operation

✧ Place a CD-R with enough free storage capacity in the drive.

✧ Wait a moment (until the LED on the CD-R drive stops blinking).

✧ Click on the **Patient** tab, if necessary.

✧ Click on this icon.
– Information about the CD is displayed in the upper right-hand corner.



Note

If you change a CD during a CD write operation, all data on that CD may be lost!

Do not change CDs *while* a CD write operation is active.

Selecting the image format

The following CD formats can be selected:

- **Packed**
  The images are stored in a Siemens format that allows you to store more images on a CD-R in a smaller time (of approximately 50%). However, this format is *not* compatible with other systems.
- **DICOM SC** (Secondary Captures)
  Images are stored in compliance to DICOM 3.0.
  All graphics information will be "burned" into the images before writing on CD-R.
  Series are converted to single images.
- **DICOM XRF/CR** (default setting after initial installation)
  Images are stored in compliance to DICOM 3.0.
  Series are stored as multiframes in DICOM XRF format.
  Image parameters are retained.
  – **Subtracted** is *not* set: DSA series are written in **DICOM XRF Full** format, i.e. images are stored unsubtracted including the mask image.
  – **Subtracted** is set: DSA series are written in **DICOM XRF Sub** format, i.e. images are stored subtracted.
- **TIFF**
  Single images can be converted to the standard TIFF format (8 bits).
- **AVI**
  Series can be converted to a movie in the AVI format (uncompressed).

See also *Transfer formats* on page 160

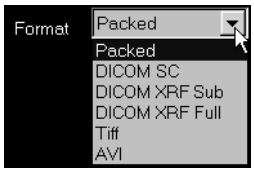
Note

When writing exported TIFF images to a non-empty CD-R that also contains data written in ISO9660 or Joliet format on a Windows™ PC, then these older sessions are automatically imported to the new session.

Note

AVI movies can be viewed on another PC.

It is not possible to view AVIs on the FLUOROSPOT Compact imaging system.



✧ Select the format in the drop-down list.

Selecting, if subtracted or not

You can decide whether DSA images will be written subtracted to disk.

✧ Click on the check box to change the setting.

Selecting the matrix size

You can decide in which matrix size fluoroloop images will be stored: 1k² or 0.5k².

✧ Click on the arrow button to change the setting.

Selecting, which images to export

You can select whether all images of the selected study (**All**) or only the marked images of that study (**Marked**) are transferred to CD.

Note

The number of marked images is indicated in brackets in the **Images** column in the **Examined Patients** list.

✧ Click on the arrow button to change the setting.

Note

The system keeps this setting as long you are logged-in.

Selecting, with or without patient information (TIFF, AVI)

When exporting images or series in TIFF or AVI format, you can specify whether to export the images with or without patient information.

✧ Click on the check box to change the setting.

Selecting the study/studies

Select the study/studies to be transferred in the **Examined Patients** list:

One study

✧ Click on the study to be transferred.
– The entry is displayed inverted.

Two or more studies

✧ Click on the first study to be transferred.

✧ Press the **Ctrl** key and click on the other studies you want to transfer.
– The entries clicked are displayed inverted.

A series of contiguous studies

✧ Click on the first study you want to transfer.

✧ Press the **Shift** key and click on the last study you want to transfer.
– This and all the entries in between are displayed inverted.

All studies

✧ Press the keys **Ctrl** + **A**.
– All study entries are displayed inverted.

The storage capacity, which is still free on the CD-R, and the storage capacity required are both displayed.

Note

You can only select studies for which there is enough free storage capacity on the CD-R.

Starting transfer

✧ Click on the OK icon to start transfer from the hard disk to the CD-R.
– The images are prepared.
– The CD recorder is prepared.
– The data is transferred in the background.
– During transfer, an icon displayed bottom right (below the tabs), indicates the running transfer process.

Note

Clicking the CD write icon again, when a transfer process is still running, displays the status dialog.

Managing image transfers / *Status display* on page 170

– The data on the CD is verified.
– If the verification is positive, the study flags are set.

Restoring archived image data

The FLUOROSPOT Compact imaging system offers the ability to record the history of patients (studies) who have been examined previously on the system, and restore the images of archived deleted studies.

It is also possible to query and retrieve studies from patients who have been examined on other FLUOROSPOT Compact systems and stored in an archive.

Please note *Transfer formats* on page 160

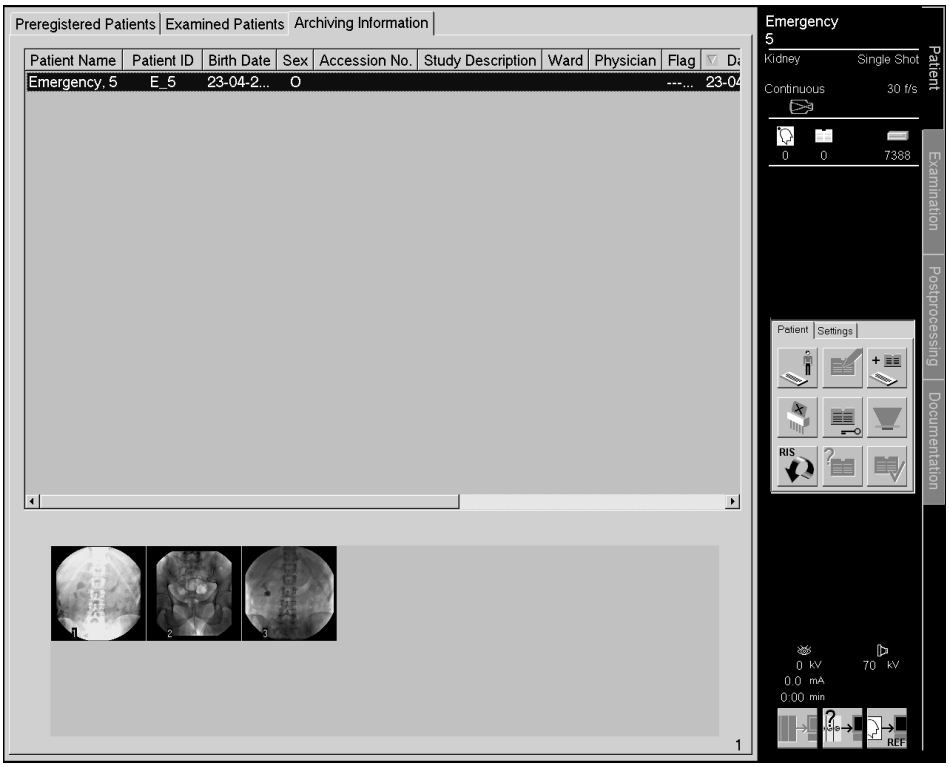
Archiving information

A history of every patient who has been examined on a FLUOROSPOT Compact imaging system is kept on this system in the **Archiving Information** list.

✧ Click on the **Patient** tab, if necessary.

✧ Click on the **Archiving Information** tab.
– The list of deleted studies (patients) is displayed.

✧ Click the required study.
– The deleted images of this study are displayed on bottom.



Note

The image stamps represent the deleted images only. They do *not* represent the archived images.

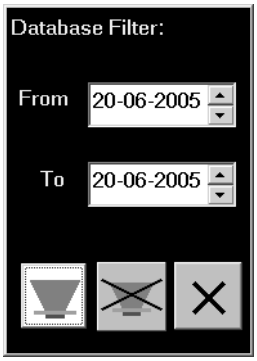
I.e. for each series, only an image stamp of the representative image is stored and displayed. Store Monitor images will not be displayed (exception: the original image/series has been deleted).

The image number indicates single images or series.

Applying a database filter

If there are too many studies in the **Archiving Information** list to find the required patient, you can restrict the display to a specific time interval.
See also *Applying a database filter* on page 57

✧ Click on this icon.
– A window with two dates is displayed.



✧ Click the required day, month or year.

✧ Click on the arrow buttons.

Or

✧ Enter the required date.

Applying the filter

✧ Click on this icon.
– Studies in the specified time interval are displayed.
– Other studies are not displayed.
– This icon is displayed instead of the previous icon.

Discarding any filter

✧ Click on this icon.
– All studies are displayed.
– This icon is displayed instead of the previous icon.

Retrieving images from an archive or a CD-R

If the images of a study have been archived on your system, you can easily retrieve them.

It is also possible, to retrieve studies acquired on another FLUOROSPOT Compact system.

Query for patient data on page 193

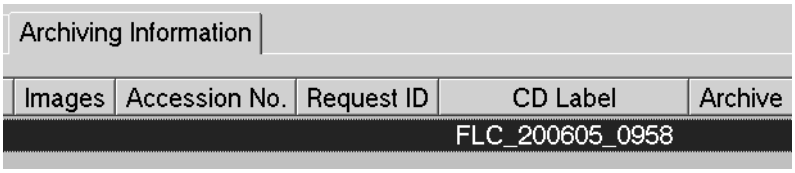
Note

It is only possible to retrieve a study which either does not exist on your system or has been retrieved partially (R flag set).

It is not possible to retrieve into study currently open for acquisition.

Finding out where a study has been archived

✧ Scroll the **Archiving Information** list to the left by using the scroll bar or the mouse wheel.



- **CD Label**: This is the label of the CD-R on which the study has been archived to (if there is an entry).

And/Or

- **Archive Node**: This is the name of the archive server on which the study has been archived to (if there is an entry).

Retrieving images from a CD-R

The **CD Label** column has a label entry for the required study (patient):

✧ Search and get the CD-R with the required label.

✧ Insert the CD-R into the CD-R drive.

✧ Wait a moment (until the LED on the CD-R drive stops blinking).

✧ Click on this icon.
Transferring data from a CD to the system on page 185

Retrieving images from an archive

The **Archive Node** column has an entry for the required study (patient):

✧ Make sure that the required archive server is online.

✧ Select the required study in the **Archiving Information** list.

✧ Click on this icon.
– The study is restored.

Query for patient data

A patient not been listed in the **Archiving Information** can also be retrieved from an archive or any configured DICOM node.

Note

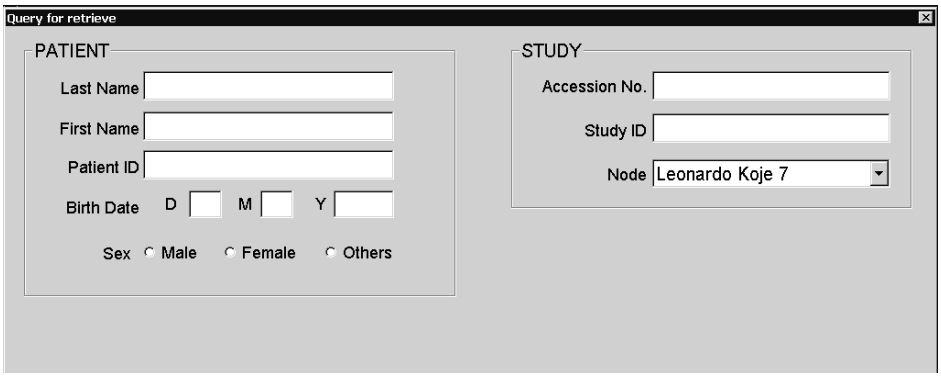
Only studies containing DICOM X-ray images in matrix size 1k² or 0.5k² will be transferred to the FLUOROSPOT Compact.

Note

It is only possible to retrieve a study which either does not exist in the **Examined Patients** list or has been retrieved partially (R flag set).

It is not possible to retrieve into a study currently open for acquisition.

✧ Click on this icon.
– The input form appears.



Entering data

✧ Enter any patient data you know.
Entering patient data on page 60

Note

You can use the following wildcards:

❑ An asterisk * indicates one or more arbitrary characters

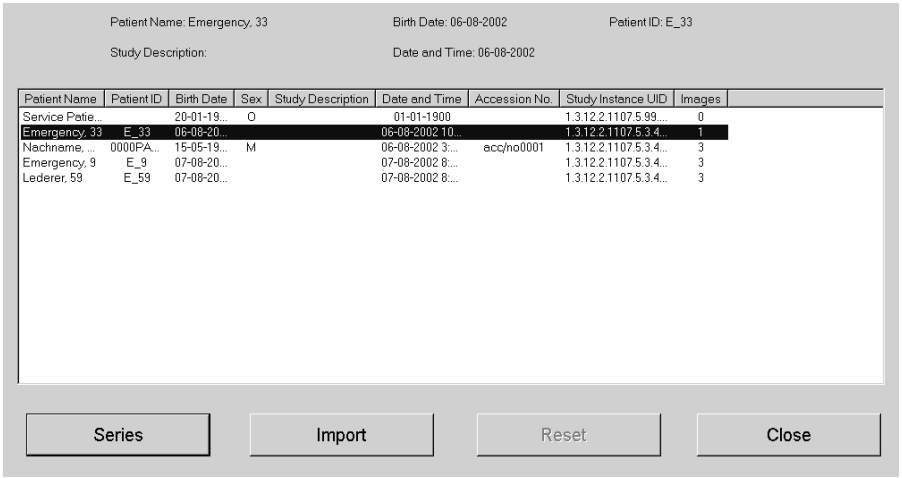
❑ A question mark ? indicates one arbitrary character

If nothing is being entered, the unfiltered query list will be displayed.

✧ Select the **Node** you want to query the study list.

Starting a query and selecting studies

✧ Click on **Studies**.
– A study list with patients fitting to your query appears.
(All studies are listed if you didn't specify patient data.)

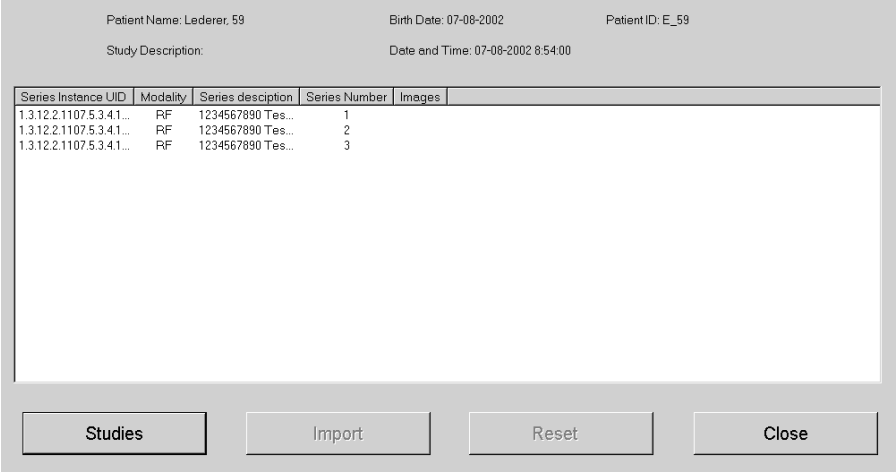


✧ Click the required study/studies in the list.

Selecting series of a study

Prerequisite: Exactly *one* study has been selected.

✧ Click on **Series**.
– A series list of the selected study appears.



✧ Click the required series in the list.

Importing the selected studies/series

✧ Click on **Import**.
– The data is transferred in the background (indicated in the status line).

Cancelling a query

✧ Click on **Cancel Retrieve**.
– The query is stopped.

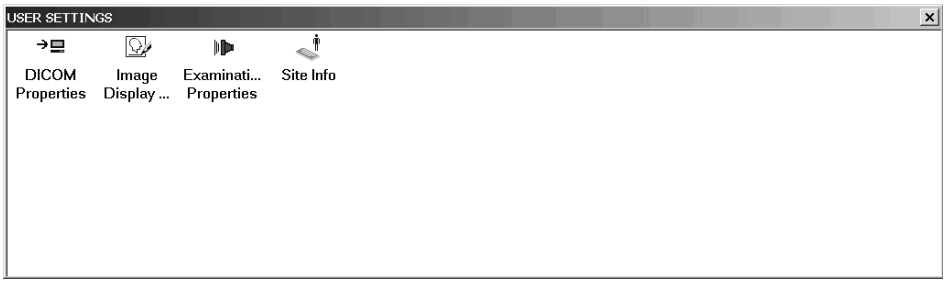
Closing the query window

✧ Click on **Close**.
– Any running queries are performed in the background.

Changing user settings

✧ Click on the **Settings** tab in **Patient** mode, if necessary.

✧ Click on this icon.
– The menu for defining user settings is displayed.



✧ Double-click the required settings icon.

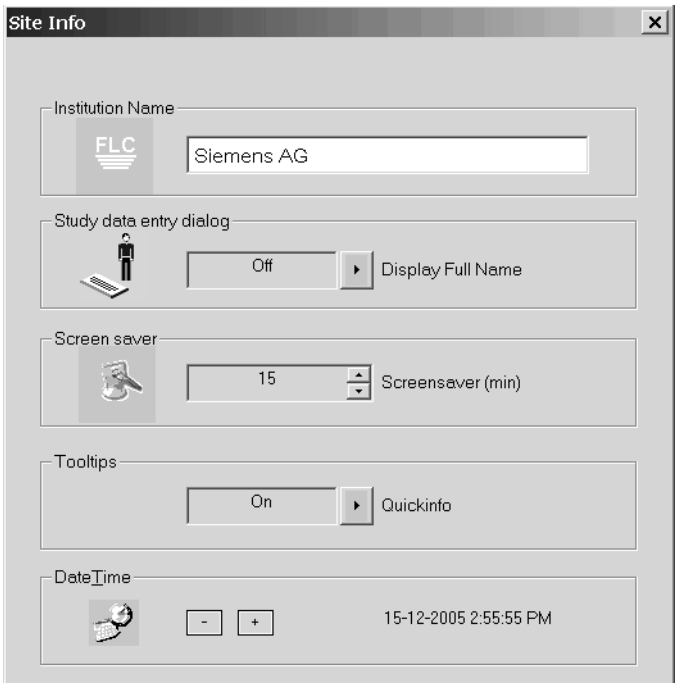
✧ Change the required settings.
See next pages.

✧ Click on **Apply** to accept your changes.

✧ Click on **OK** to accept your changes and close the settings window.

✧ Click on **Cancel** to reject your changes and close the settings window.

Site information



Institution Name
✧ Enter the name of your hospital or practice. (26 characters maximum)

Study data entry dialog
Display **Middle Name**, **Title** and **Suffix** in the patient registration dialogs.
Entering patient data on page 60

Screen saver
Here you can set the time after which the screen saver is activated.
Possible settings: 0 ... 99 minutes, 0 = no screen saver
Screen saver on page 45

Tool tips

Here you can switch the tool tips for the buttons on or off.
Tool tips on page 39.

Date&Time[1]

The current system time is displayed.
(This is taken over from the system clock.)

Changing the system time between daylight-saving time and standard time

When changing from standard time to daylight-saving time:

✧ Click on **+**.
– The system clock is put one hour forward.

When changing from daylight-saving time to standard time:

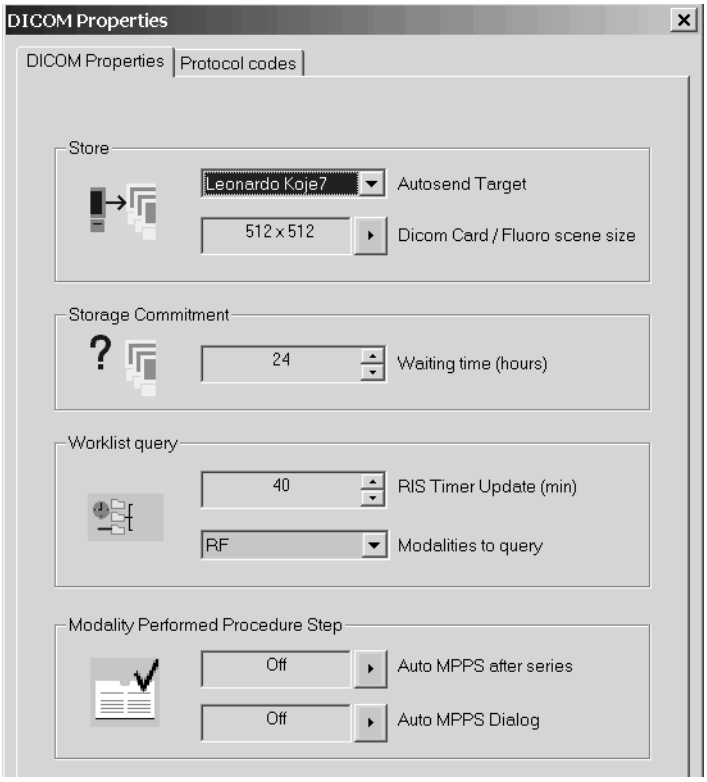
✧ Click on **-**.
– The system clock is put one hour back.

Note

Date and time format can be set in service mode.

✧ Please consult Siemens Service.

DICOM properties



[1] Date/time and date/time format can be set by the Siemens Customer Service.

Store

Autosend Target

It is possible to configure a host where images are automatically sent to.

Note

To perform automatic sending, **Mark Image** must be set in a fluoro or organ program.

Context of automatic marking and automatic sending on page 103

✧ Select the network target where to send the images automatically when re-entering **Patient** mode.

Or

✧ Select no target (empty field) to disable automatic sending.

Dicom Fluoroloop Size

Define the matrix size for fluoroloop transfers via network.

Storage Commitment

Waiting time (hours)

The time the imaging system is waiting after a study / images have been sent to an archive server with storage commitment.

If the archive does not commit during this time, the archive flag is not set.

Worklist query

RIS Timer Update (min)

For receiving work list data from HIS/RIS (hospital/radiological information system), you can set the update interval (minutes).
Updating the work list on page 51

Possible settings:
Update: 0 ... 1440 minutes, 0 = no update

Modality to query

Selection of modality to use for worklist queries.

Modality Performed Procedure Step (MPPS)

Auto MPPS after series

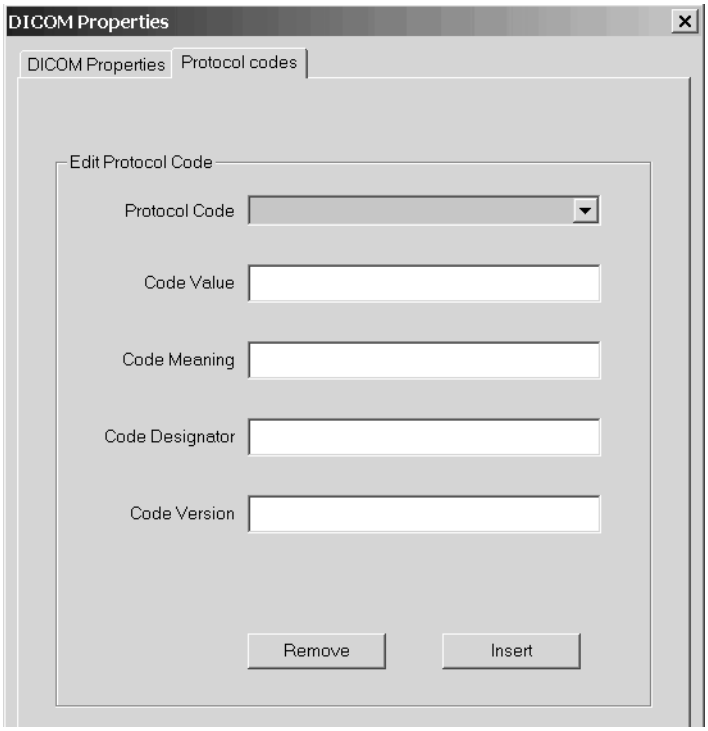
Send the completion status **In Progress** automatically to the RIS system after each acquisition of images.

Auto MPPS Dialog

Enable automatic MPPS Close dialog when switching back to the **Patient** mode.
Finishing a patient entry - MPPS Close on page 67

Note

If MPPS is not licensed or no MPPS server has been configured, the **Auto MPPS after series** and **Auto MPPS Dialog** items in the **User Settings** dialog are both dimmed and set to **Off**.



Edit Protocol Code

For MPPS Close, you can define protocol codes.
Finishing a patient entry - MPPS Close on page 67

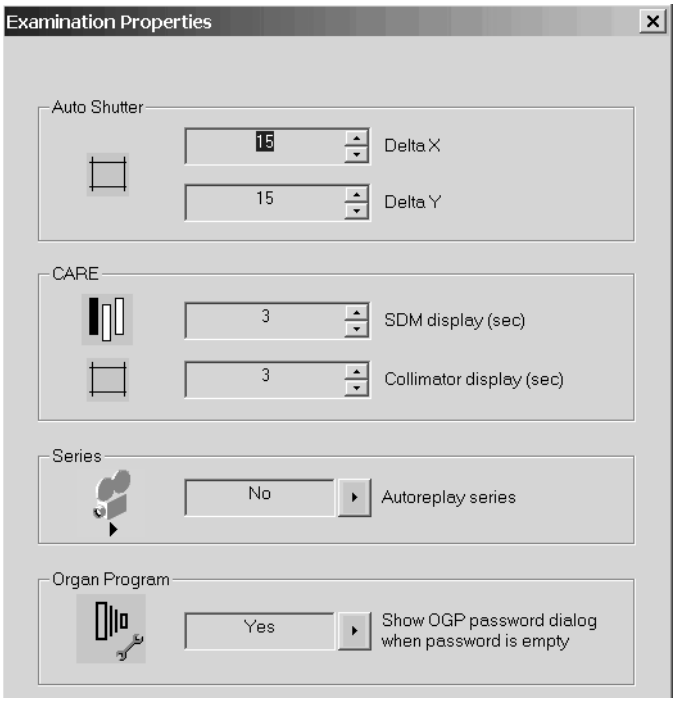
Adding a new protocol code

✧ Enter the codes and then click on **Insert**.
– A new action item is created.

Deleting an protocol code

✧ Select the item to delete in the **Protocol Code** list and then click on **Remove**.

Examination properties



Auto Shutter

The automatic shutter position can be adjusted closer to the center position by a configurable default (range: 0 ... 200 pixel).

CARE

SDM display (sec)

Duration of measuring field display (measurement with selective dominant) after the start of fluoroscopy.

Possible settings: 0 ... 10 seconds, 0 = off

Collimator display (sec)

Duration of collimator shape display.

Possible settings: 0 ... 10 seconds, 0 = off

Series

Autoreplay series

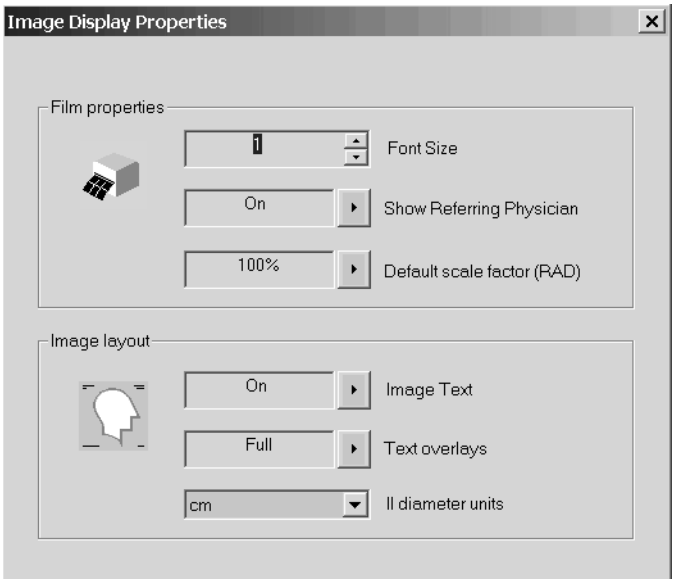
If configured, series replay starts automatically after the end of a series acquisition.

Organ Program

Show OGP password dialog when password is empty

If no password is set for changing organ programs, the password dialog normally does not appear. If you set this, the password dialog is displayed.

Image display properties



Film properties

Font Size: Adjust the font size of the following text information on the film sheet.

- ❑ Patient name
- ❑ Referring Physician
- ❑ Image number

Possible settings:
1 = normal font size
2 ... 9 = bigger font sizes

Show Referring Physician: Show/hide the referring physician's name on the top right corner of each film sheet.

Default scale factor (RAD)

no function

Image layout

Image Text

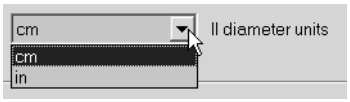
Here you can switch the text on images on or off, for example, if you want to send images for hardcopy without the patient name. In this case, only the image number and the image type are displayed.

Text overlays

Here you can set the image text display on the film sheet.
You can choose between two settings:

- ❑ **Full**
  The whole image text is displayed.
- ❑ **Reduced**[1]
  Only the following information is displayed:
  – Patient name
  – Patient ID
  – Patient's date of birth
  – Date of examination
  – % o.p.

II diameter units



✧ Select which unit (cm or inch) to use for the image intensifier (I.I.) formats.

Service functions

Exporting images for service

Images can be exported for service purposes in a special folder on the hard disk.

Service study

If negatively influence the image quality occur in the overall system, you can copy corresponding image examples in the service folder for the Technical Customer Service.

Our Technical Customer Service can then use these images for further analysis.

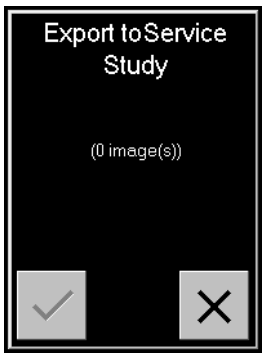
Note

The images are anonymized (removal of image texts) before copying them to the service folder.

Starting export

✧ Click on the **Select** tab in **Documentation** mode, if necessary.

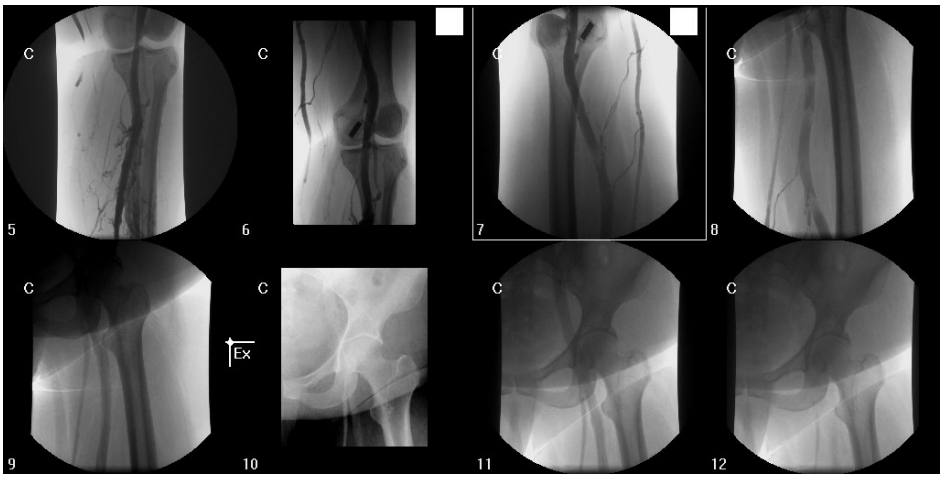
[1] only for the film sheet



✧ Press the **F12** key.
– The “Export to” dialog box appears.

✧ Move the mouse cursor into the image area.
– The mouse cursor takes the shape of the word “**Ex**”.

✧ Click the required images one after the other.
– The images are marked with a white square in the top right-hand corner.
See also *Image documentation* on page 144.



Images marked for export

Exporting

✧ Click on the OK icon.

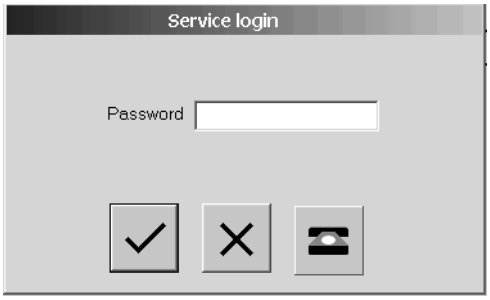
✧ The images are copied into the export folder.

Service login

With the password-protected service functions, it is possible to define the basic settings of the imaging system. Your Siemens Customer Service has access to these functions with the password.

✧ Click on the **Settings** tab in **Patient** mode, if necessary.

✧ Click on this icon.
– The password query appears.



Enabling access for remote diagnosis

For image transfer and remote diagnosis it is necessary to enable remote access to the FLUOROSPOT Compact imaging system.

✧ Click on this icon.
– Remote access is now enabled.
– The “Service login” window stays on top with OK and Cancel icons disabled.

Caution

Access via remote service

Risk that acquisition or fluoroscopy is not properly completed

✧ Do *not* perform any operation during remote access.

Disabling access for remote diagnosis

When image transfer and remote diagnosis are finished, you have to disable remote access again:

✧ Click on this icon.
– Remote access is now disabled.
– Normal operation is possible again.

Entering service mode

For service purposes, there are some functions available which can be used to perform a diagnosis of your system in case of failure.

✧ Enter the password and click on this icon.
– The service functions are now available.

Back to normal operation

✧ Click on this icon.

Or

✧ Click on this icon.

Note

This chapter is intended for system administrators.

Normal users may not have the rights to change any administrator settings.

Introduction to HIPAA

The HIPAA (Health Insurance Portability and Accountability Act) feature provides mechanisms to secure the FLUOROSPOT Compact imaging system, patient data and images from misuse by unauthorized persons.

HIPAA license

The functionality regarding HIPAA is available via a software license key.

Note

If this license key (and therefore HIPAA functionality) is activated on the system, no deactivation is possible anymore without loss of patient and image data.

That means deactivation of HIPAA functionality is only possible on a “new” and “empty” system.

Access control

If no user is logged in, it is not possible to access the imaging system, patient or image data. Only after user authentication it is possible to work with FLUOROSPOT Compact imaging system.

Emergency login

The system allows access in a special mode without authentication in order to enable examination in case of an emergency.

A default *Emergency User* is implemented in the user management with default values and minimal access rights.

For this special user no password is set.

The access *privileges* of the Emergency User are restricted.

All *patients* assigned to the *Emergency Group* or without a group entry (RIS patients) are visible for the Emergency User. All other patients are not visible.

Administrator login

The administrator can login, using a separate login name and password granting administrator rights to modify the permissions and privileges of all users.

Note

For user and group management, the standard Windows XP® tools are used.

Data exchange

Sending and retrieving data via DICOM to or from any DICOM server is only possible if the external system is ‘known’ to the FLUOROSPOT Compact imaging system.

It is assumed, that the FLUOROSPOT Compact imaging system is in a 'secured network' (behind a firewall). For this reason and because of DICOM supports no possibility of data encryption, the FLUOROSPOT Compact imaging system supports the 'trusted hosts' mechanism and does not support data encryption.

Audit trail

User and system events of the FLUOROSPOT Compact imaging system are recorded in the *audit trail*.

It is possible to save the audit trail to a CD-R when logged-in as administrator.

Users and groups back-up/restore

It is possible to backup the users and groups of a FLUOROSPOT Compact to a CD-R and restore it later on the same or another FLUOROSPOT Compact.

Data integrity

The FLUOROSPOT Compact imaging system checks all the entered and received data for integrity. All mandatory data must be available before FLUOROSPOT Compact performs any related function (e.g. new patient).

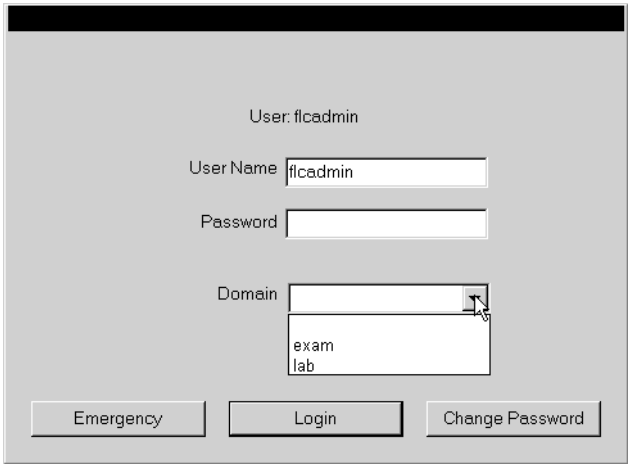
Data consistency

The FLUOROSPOT Compact imaging system checks all the entered and received data for consistency. This means: format check (e.g. only integer allowed, or no special characters allowed); range check (min/max values; inserted data should be 'useful');

Logging in as administrator

Users and groups management (and all HIPAA functions) can be done only when logged-in as administrator.

✧ Log off, if you are logged-in as a different user.
Click on this icon on the **Settings** subtask card in **Patient** mode.
– The login window is displayed.



✧ Enter the login name **flcadmin** and the (local) administrator password (**flcadmin** for the first login) and then click on **Login**.

✧ Select *no* domain (blank field) for the first login or if the FLUOROSPOT Compact is set up for use without domain controller.

Note

If it is the first login on a new FLUOROSPOT Compact, you should change the administrator password.

Setting up the network connection

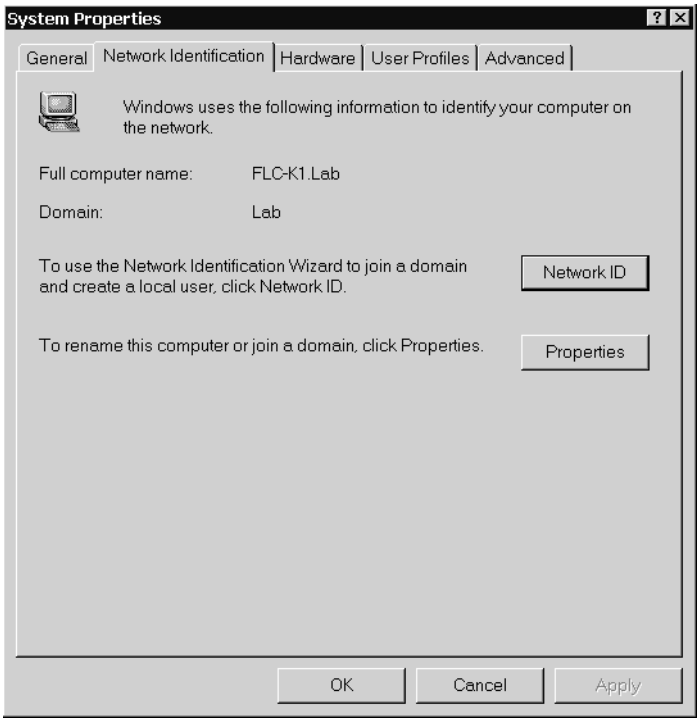
The FLUOROSPOT Compact imaging system can be integrated into an existing network.

✧ Click on this icon on the **Settings** subtask card in **Patient** mode.
– The **FLCSrvCon** configuration window is displayed.

Note

The user interface of the network administration is always in *English*, whatever language is configured.

✧ Click into the window on the right.
– The **System Properties** window is displayed.



✧ Click on **Properties**.
– The **Identification Changes** window is displayed.

✧ Enter the computer name and select **Domain** or **Workgroup**.

✧ Enter the domain name, if necessary.

✧ Click on **OK** (twice).

Users and groups management

Caution

Changing users, groups and settings

Using the administration tools, the FLUOROSPOT Compact can be modified in a way, that fluoroscopy and acquisition are not possible anymore.

It is the responsibility of the administrator to set up users and groups correctly.

✧ Observe the notes in this chapter.

The FLUOROSPOT Compact imaging system handles different users and is able to identify and distinguish between every specific user.

The FLUOROSPOT Compact imaging system supports 'normal' system users so that the user management can be made with standard Windows XP® system tools. The creation of users and groups and the relation between these is also handled with the Windows XP® tools.

Local users or Domain controller

The users and groups may exist on the FLUOROSPOT Compact imaging system *locally* (factory default). In this case, only specific users and groups for your environment have to be created.

It is also possible to use a *Windows 2000/XP® domain controller* to manage users and groups on your site. In this case, *all* the FLUOROSPOT Compact users and groups have to be created in the domain controller *manually*.

Note

If a domain controller is used, make sure that the users and groups exist *both* locally *and* on the domain controller.

If not, users may not be able to log-in or use all functions on the FLUOROSPOT Compact when the domain controller is down.

Password policy

You can specify in the normal Windows XP® manner, how long passwords have to be (default at delivery time: 6 characters minimum), how often the users have to change their passwords and so on.

You can specify this locally and also using a domain controller.

Note

For more information on groups and user management please refer to the Windows XP® documentation.

FLUOROSPOT Compact groups and users

User groups and permissions

The FLUOROSPOT Compact imaging system supports access control to patient records via user groups.

The user group (permission) of the actual user is assigned to the patient study of a new patient and an emergency patient at the time when the study is created.

A RIS study belongs to *no group* until a user performs the first acquisition. Then, the group of the actually logged-in user will be assigned.

Studies which are imported from CD or DICOM network have also the status *no group*.

If a user is member of more than one user group the first entry of the list is used as the 'default group'.

The FLUOROSPOT Compact imaging system presents patient records in the patient lists only to the actually logged-in user, if the user is member of the assigned user group of the patient record or the group entry is empty or contains the group 'emergency'.

Patients assigned to other groups (the user does not belong to) are not visible for the user.

Change of user group

The user groups (permissions), a user belongs to, are listed in the **Group** list of the **Data Entry Dialog**.
Modifying patient data on page 63

If a user belongs to more than one group, he can change the assignment of a patient to a group via the **Group** list.

Note

If a user group was deleted or renamed by the administrator, the group is hidden, patient and image data belonging to the deleted group *cannot be seen anymore*!

Deleting or renaming a group on page 218

FLC groups and privileges

The FLUOROSPOT Compact imaging system supports access control to functions (privileges) via 'special groups' (role mechanism). The 'special groups' are:

FLC group	Privileges
FLC_PATdata	Patient modify, add and delete in all patient lists. This privilege includes also the delete function in **Documentation** mode.
FLC_Configuration	Configuration in **USER SETTINGS** dialog.
FLC_OGPedit	Change of organ and fluoroscopy programs
FLC_STC_MPPS	Storage Commitment and MPPS
FLC_Media	CD read/write
FLC_Query_Retrieve	Query and retrieve
FLC_Graphics	**Graphics** subtask card in **Postprocessing** mode
FLC_DSA	**DSA** subtask card in **Postprocessing** mode This privilege is not including the DSA functions for examinations.

FLC group	Privileges
FLC_FILM	**Film** subtask card in **Documentation** mode
FLC_SEND	**Send** subtask card in **Documentation** mode

During every user login the special groups (defined above) of the user will be checked. The corresponding icons and buttons will be dimmed, if the user is not member of the concerning special group.

Note

If one or more of the FLC groups are not defined, the corresponding functions will not be available at all. A corresponding message will be displayed.

The special groups are available in the local user management after installation process of FLUOROSPOT Compact imaging system. In case of network user management, the special groups of FLUOROSPOT Compact imaging system have to be created by the network administrator on the domain server.

Default users and passwords

At delivery time, the following users to log-in are pre-installed:

- ❑ **Emergency**[1], without password, belongs to **Emergency Users** group
  User with restricted rights which makes it possible to perform emergency examinations only
- ❑ **flcuser**[1], belongs to the **Users** and the **Administrators** group
  Used for automatic login and start of the FLUOROSPOT Compact application.
- ❑ **flcadmin**, password **flcadmin**, belongs to the **Administrators** group
  User for system administration

There is one additional user for maintenance purposes:

- ❑ **FLC-RS**[1]: user for remote service

There are also some Windows XP® built-in users, which cannot log-in:

- ❑ **Guest**[1], **HelpAssistant**[1], **IUSR_FLCOMPACT**[1], **IWAM_FLCOMPACT**[1]

Caution

Setting a password for the **Emergency User** /
Changing the password for the **flcuser**

The Emergency button in the login window will *not* work! /
The automatic login and start of the FLUOROSPOT Compact application will *not* work!

✧ We do *not* recommend to set a password for the **Emergency User** or change the password of the **flcuser**.

[1] We do *not* recommend to change any settings of this user.

Caution

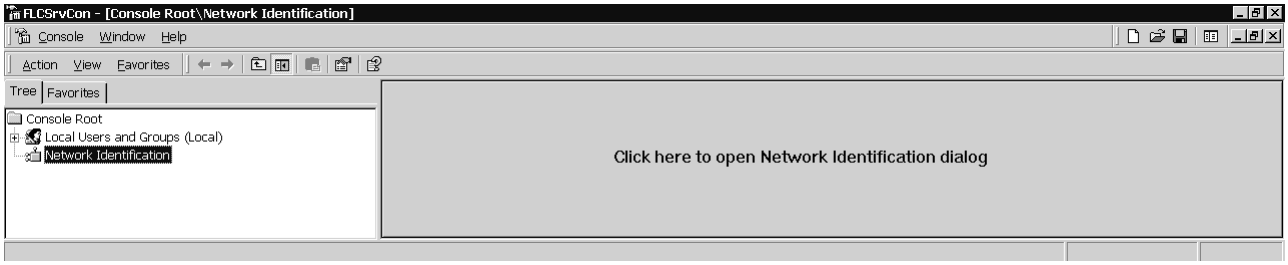
Using special characters for the password (e.g. blanks " ")

The FLUOROSPOT Compact may not be accessible anymore

✧ Use only letters and figures.

Setting up (local) groups and users

✧ Click on this icon on the **Settings** subtask card in **Patient** mode.
– The **FLCSrvCon** configuration window is displayed.



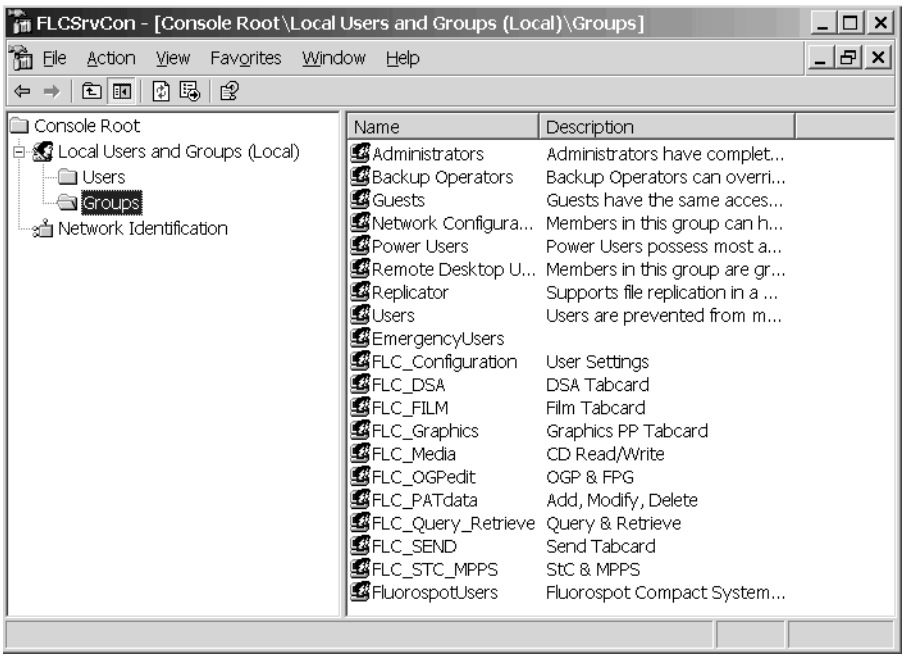
✧ Open the **Local Users and Groups** tree (on the left).

Note

The user interface of the users and groups administration is always in *English*, whatever language is configured.

Default groups

Initially, the following groups are installed on a FLUOROSPOT Compact imaging system:



Local groups (factory default)

Note	Group name	Description
Windows XP® built-in groups	**Administrators**	These are standard Windows XP® groups which have no special function within the FLUOROSPOT Compact imaging system.
	Backup Operators	
	Guests	
	Network Configura-tion Users	
	Power Users	
	Remote Desktop Users	
	Replicator	
	Users	
FLUOROSPOT Compact groups	**EmergencyUsers**	
	FLC_Configuration	User Settings
	FLC_DSA	DSA Tabcard
	FLC_FILM	Film Tabcard
	FLC_Graphics	Graphics PP Tabcard
	FLC_Media	CD Read/Write
	FLC_OGPedit	OGP & FPG
	FLC_PATdata	Add, Modify, Delete
	FLC_Query_Retrieve	Query & Retrieve
	FLC_SEND	Send Tabcard

Note	Group name	Description
	FLC_STC_MPPS	StC & MPPS
	FluorospotUsers	

Note

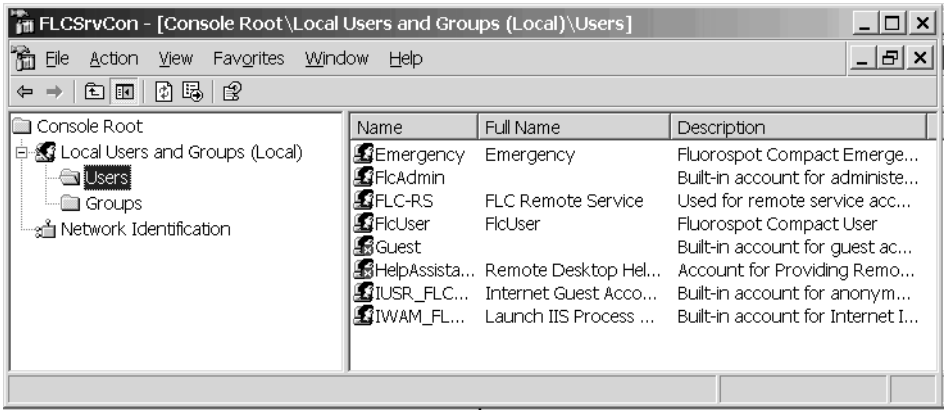
Do not delete or change the **EmergencyUsers** group. If you do this, no emergency login will be possible.

Do not delete or change the **FLC_*** groups. If you do this, the corresponding functions will not be available.

The **FluorospotUsers** group is an example for a 'normal' user group.

Default users

Initially, the following users are installed on a FLUOROSPOT Compact imaging system:



Local users (factory default)

Note	User name	Full name	Description
Administrator	**FlcAdmin**		Built-in account for administering the computer/domain
FLUOROSPOT Compact users	**Emergency**	Fluorospot Compact Emergency User	
	FlcUser	FlcUser	Fluorospot Compact start-up user
	FLC-RS	FLC Remote Service	Used for remote service accesses via Web
Windows XP® built-in users	**Guest**	These are standard Windows XP® users which have no special function within the FLUOROSPOT Compact imaging system (login disabled).	
	HelpAssistant		
	IUSR_FLCOMPACT		
	IWAM_FLCOMPACT		

Note

Do not delete or change the **Emergency** user. If you do this, no emergency login will be possible.

Do not delete or change the **FlcUser** user. If you do this, the FLUOROSPOT Compact application will not start correctly.

Do not delete or change the **FLC-RS** user. If you do this, remote service will not be possible.

Do not activate the built-in accounts. If you do this, security is impaired.

Groups and users on your site

You can create and edit groups and users in the same manner, you are used to.

It is also possible to create the same user accounts used on other computers on your site.

No special requirements (except these, mentioned already) apply to users, to be created for the FLUOROSPOT Compact.

Example

You are working in an hospital which has four stations: north, east, south, west

Some people may be working in one or more of these stations who are only allowed to see their patients and might not be allowed to perform special functions.

There may also exist a chief physician who wants to see all the patients and wants to be able to perform all the functions on the FLUOROSPOT Compact.

In order to manage this, you may do the following:

- ❑ Create the (*permission*) user groups: **station_north**, **station_east**, **station_south**, **station_west**
- ❑ Create single users: e.g. **miller**, **johnson**, ...
- ❑ Create the user **chief** for the chief physician
- ❑ Assign each user to one or more (*permission*) user group: e.g. **miller** to **station_north** and **station_west**, **johnson** to **station_south** only
- ❑ Assign the user **chief** to every (*permission*) user group
- ❑ Assign each user its *privileges* (**FLC_...** groups)
- ❑ Set the password and password expiration for each user

The exemplary situation can be summarized in a table:

Users	miller	johnson	chief
Permissions (user groups):			
station_north	x		x
station_south		x	x
station_east			x
station_west	x		x
Privileges (FLC groups):			
FLC_Configuration			x
FLC_DSA	x		x
FLC_FILM		x	x
FLC_Graphics	x	x	x
FLC_Media		x	x
FLC_OGPedit			x
FLC_PATdata	x	x	x
FLC_Query_Retrieve	x	x	x
FLC_SEND	x	x	x
FLC_STC_MPPS	x	x	x

Example

To set up your configuration, you may use this empty table:

Users																
Permissions (user groups):																
Privileges (FLC groups):																
FLC_Configuration																
FLC_DSA																
FLC_FILM																
FLC_Graphics																
FLC_Media																
FLC_OGPedit																
FLC_PATdata																
FLC_Query_Retrieve																
FLC_SEND																
FLC_STC_MPPS																

Creating a new group

✧ Click on **Groups** in the tree (on the left).

✧ Select **New Group...** in the function menu (right mouse button).
– The **New Group** window is displayed.

✧ Enter the group name and a description.

✧ Add users to belong to the group (if already exist).

Editing a group

✧ Double-click on group name to edit (on the right).
– The **Properties** window is displayed.

✧ Change the group name and/or description.

✧ Add/remove users to belong to the group (if already exist).

Deleting or renaming a group

Note

The FLUOROSPOT Compact checks the name (spelling) of the groups.

It does not refer to the internal (invisible) Windows XP® group ID.

Before deleting or renaming a user group, you must make sure, that no patient or image data belongs to the user group to be deleted or renamed.

✧ To do this, check the **Group** column in the **Examined Patients** and **Archiving Information** lists.

If studies are belonging to a user group to be deleted or renamed, you must assign these studies to another user group.

✧ Change the **Group** assignment of each study in the **Data Entry Dialog**.
Modifying patient data on page 63

Now you can delete or rename the group.

✧ Click on this icon on the **Settings** subtask card in **Patient** mode.

✧ Click on **Groups** in the tree (on the left).

✧ Click on group name to delete or rename (on the right).

To delete a group:

✧ Select **Delete** in the function menu (right mouse button).

To rename a group:

✧ Select **Rename** in the function menu (right mouse button).

✧ Correct/enter the group name.

Creating a new user

✧ Click on **Users** in the tree (on the left).

✧ Select **New User...** in the function menu (right mouse button).
– The **New User** window is displayed.

✧ Enter the login name and the full name/description (if required).

✧ Enter/re-enter the password for the user.

✧ Set the password policy for the user.

✧ Add groups (if already exist) the user shall belong to.

Editing a user

✧ Double-click on the user name to edit (on the right).
– The **Properties** window is displayed.

✧ Change the full name and/or description in the **General** tab card.

✧ Set the password policy for the user in the **General** tab card.

✧ Add groups (if already exist) the user shall belong to in the **Member Of** tab card.

Note

You need not change anything in the **Profile** tab card. This has no effect on the FLUOROSPOT Compact imaging system.

Renaming a user

✧ Click on user name to rename (on the right).

✧ Select **Rename** in the function menu (right mouse button).

✧ Correct/enter the user name.

Deleting a user

✧ Click on user name to delete (on the right).

✧ Select **Delete** in the function menu (right mouse button).

Setting up FLC groups and users on a domain controller

You can add and edit groups and users with your normal Windows 2000/XP® server administration tools. The general information given in the last section also applies to user administration in domain controllers.

✧ Set-up the FLUOROSPOT Compact for use with a domain controller.
Setting up the network connection on page 207

✧ Add the following groups on the server.

Note

Make sure to spell the group and user names correctly (case sensitive!).

If not spelled correctly, the corresponding functions will not work.

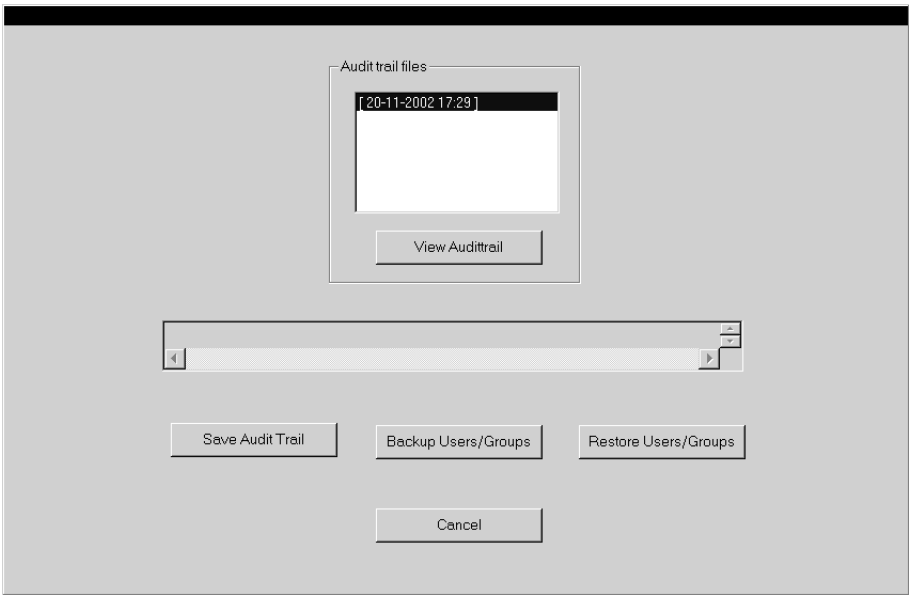
Group name	Description
EmergencyUsers	Emergency Users
FLC_Configuration	User Settings
FLC_DSA	DSA Tabcard
FLC_FILM	Film Tabcard
FLC_Graphics	Graphics PP Tabcard
FLC_Media	CD Read/Write
FLC_OGPedit	OGP & FPG
FLC_PATdata	Add, Modify, Delete
FLC_Query_Retrieve	Query & Retrieve
FLC_SEND	Send Tabcard
FLC_STC_MPPS	StC & MPPS
FluorospotUsers	Fluorospot Users

✧ Add or assign users and user groups on the server *and* on the FLUOROSPOT Compact.
Setting up (local) groups and users on page 212

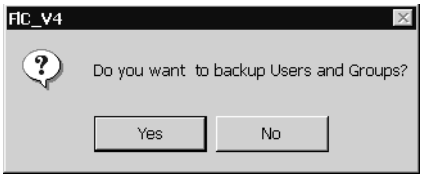
Backing up users and groups

✧ Log-in as administrator.

✧ Click on this icon on the **Settings** subtask card in **Patient** mode.
– A window is displayed.



✧ Click on **Backup Users/Groups**.
– A window is displayed.



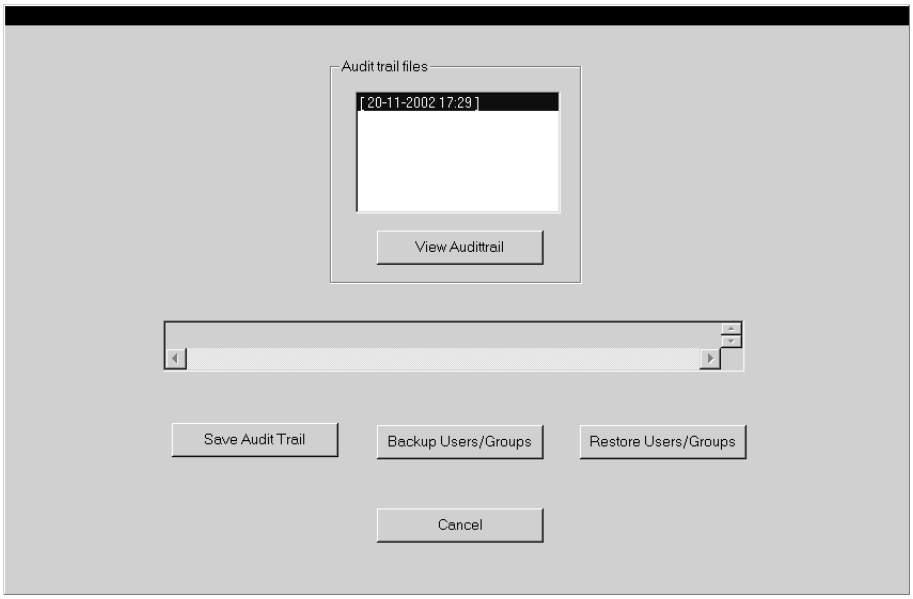
✧ Insert a CD-R to the CD drive.

✧ Click on **Yes**.
– The users and groups ´are written to the inserted CD-R.

Restoring users and groups

✧ Log-in as administrator.

✧ Click on this icon on the **Settings** subtask card in **Patient** mode.
– A window is displayed.



✧ Click on **Restore Users/Groups**.
– A window is displayed.

✧ Insert the CD-R which contains backed-up users and groups files to the CD drive.

✧ Click on **Yes**.
– The users and groups ´are restored from the inserted CD-R.

Audit trail

Defined user and system events of the FLUOROSPOT Compact imaging system are recorded in the *audit trail*.

The audit trail file is created using a 'xml' structure.

Log header

Every audit trail file contains a header with following information:

❑ the vendor name 'SIEMENS'

❑ the product name 'FLUOROSPOT Compact'

❑ the actual software version

❑ the serial number of the FLUOROSPOT Compact

❑ the IP address

❑ the institution name

Log entries

Every entry of an audit trail file contains the following information:

- ❑ user identifier, name and group
- ❑ time and date of the occurrence
- ❑ function name of performed function
- ❑ information, how much images have been deleted, sent or exported
- ❑ patient information: patient name, patient ID, patient date of birth if an operation changes patient data

Log events

The following events are logged in the audit trail file (examples):

- ❑ User login and logout
- ❑ Every unsuccessful login attempt
- ❑ Creation of a patient (received RIS patient too)
- ❑ Update of patient information (any change of patient related data)
- ❑ New, Modify, Add, Delete patient
- ❑ Deletion of patients or images (only if not all images of this patient are archived already)
- ❑ Start of acquisition
- ❑ Acquisition or storage of images in a study
- ❑ Setting or deletion of R/L markers
- ❑ End of acquisition/patient close: summary, number of images, dose data
- ❑ Any change of an organ or fluoroscopy program
- ❑ Sending of images with destination, amount, and mode, ...
- ❑ Hardcopy jobs (which images, in which format, to which hardcopy camera)
- ❑ Paper prints
- ❑ Query / Retrieve
- ❑ CD write operations
- ❑ Every service session
- ❑ Every access via remote service
- ❑ Every software update
- ❑ Every reboot / start of system
- ❑ Any denied network connection from a remote system

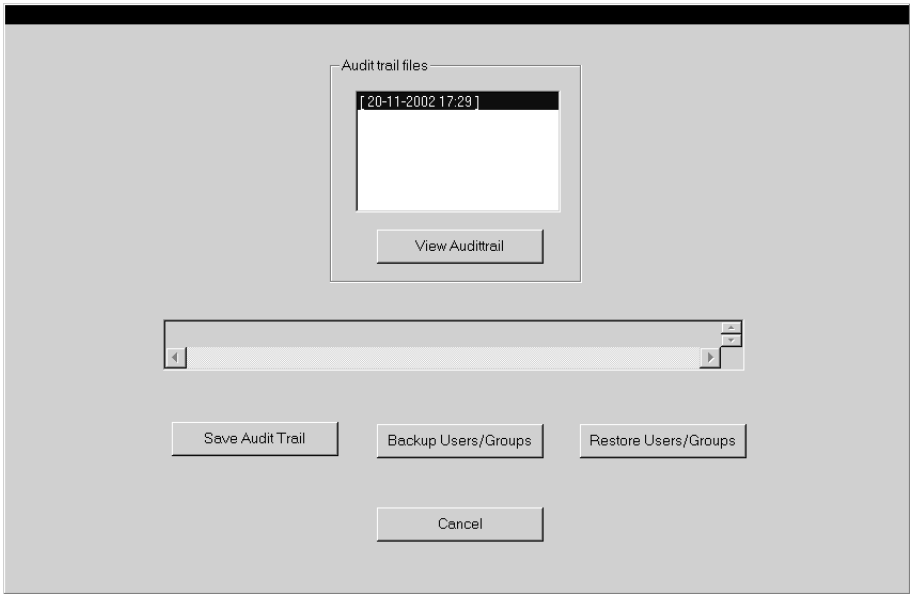
Automatic compression

The audit trail files are automatically compressed when they reach a size of 1 MB. The old files are kept in the ZIP format, the current file is deleted and restarted.

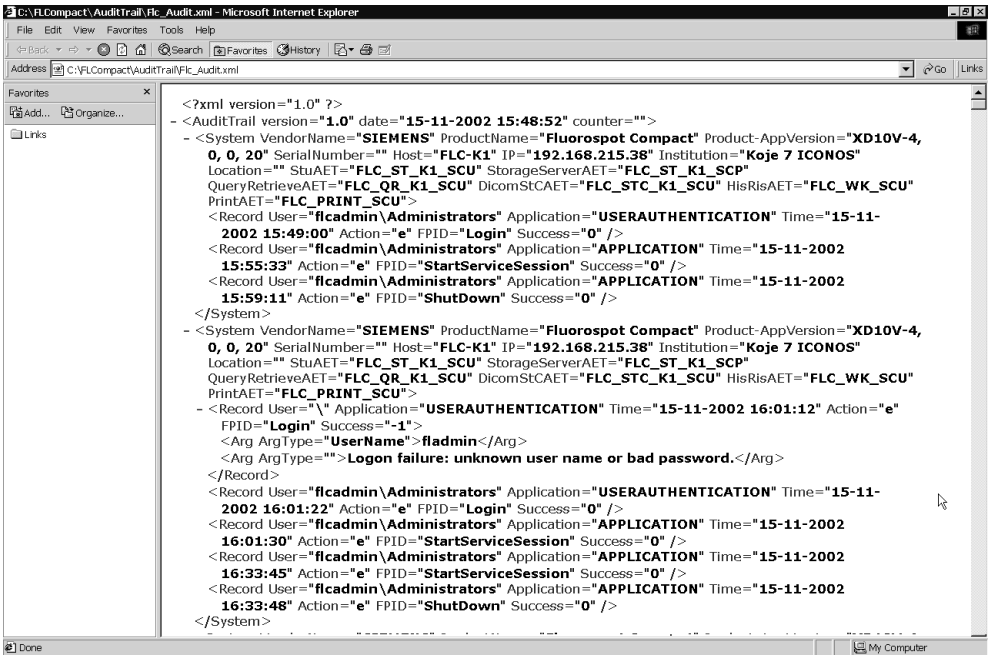
Viewing the audit trail

✧ Log-in as administrator.

✧ Click on this icon on the **Settings** subtask card in **Patient** mode.
– A window is displayed.



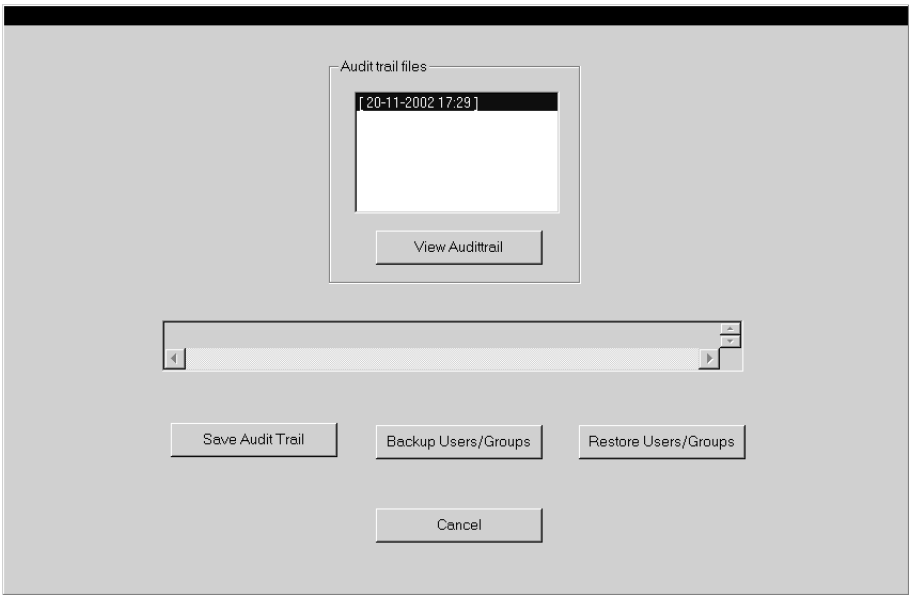
✧ Click on **View audit trail**.
– The Internet Explorer® displays the *current* xml audit trail file.



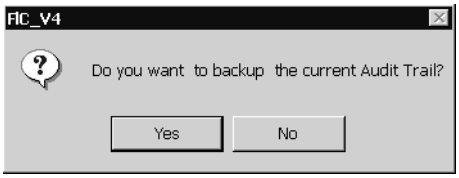
Backing up the audit trail files

✧ Log-in as administrator.

✧ Click on this icon on the **Settings** subtask card in **Patient** mode.
– A window is displayed.



✧ Click on **Backup Audit trail**.
– A window is displayed.



✧ Insert a CD-R to the CD drive.

✧ Click on **Yes**.
– All not yet stored audit trail zip files are written to the inserted CD-R.

Technical data

Imaging system

Image receptor	CCD camera
Image matrix	1kx1k pixels
Fluoroscopy	
Fluoroscopy modes	The fluoro frequencies depend on the CCD camera used: ❑ Continuous fluoroscopy at 30 f/s CAREVISION pulsed fluoroscopy at 15; 7.5 and 3 f/s or alternatively SUPERVISION dose-saving fluoroscopy corresponding 15 f/s ❑ Continuous fluoroscopy at 25 f/s CAREVISION pulsed fluoroscopy at 12.5; 8 and 3 f/s or alternatively SUPERVISION dose-saving fluoroscopy corresponding 12.5 f/s ROADMAP[1]: subtraction sequence with any fluoro mode
Stored image matrix	1kx1k/10-bit matrix (1kx0.5k with continuous fluoroscopy)
Image processing	moving weighted averaging, harmonization (DDO), edge enhancement, windowing, etc.
LIH	LIH (Last Image Hold)
Fluoro loop	For all fluoro modes the fluoro loop feature is available to store online the last images in a RAM based ring buffer: Continuous fluoroscopy: 512 images maximum SUPERVISION: 256 images maximum CAREVISION: 256 images maximum
Acquisition	Single image, series, tomography, DSA series, PERI Stepping series
Stored image matrix	1kx1k/10-bit matrix
Series acquisition	0.5; 1; 2; 3; 4 f/s standard 6; 8; 15; 30 f/s optional
DSA series	0.5; 1; 2; 3; 4; 6; 8 f/s
Tomo series	2.5 / 1.2 / 1.0 / 0.8 / 0.6 / 0.4 seconds
PERI Stepping	Up to 8 native sub-series, each sub-series 0.5; 1; 2; 3; 4 f/s

[1] with DSA

Image processing	Edge enhancement, harmonization (DDO), windowing, etc.
	Single image display
	Loop display
	PERI display

Computer system

Equipment	Personal Computer, Ethernet network interface, interface card for X-ray system, video interface, CCD camera with associated electronics, CD-R drive
	Barcode reader for patient data acquisition
Noise level	≤50 dBA

Monitor system

Monitors	two image monitors maximum and two reference image monitors maximum
Resolution	1280 x 1024 pixels
Video recorder Interface	Output CCIR/EIA 625/525 lines 50/60 Hz

Archiving and documentation

System storage capacity	2,000 images or up to 30,000 images in combination with fluoro loop feature
Background functions	Preprocessing and data transfer is done in the background.
Archiving	CD-R read/write in DICOM 3.0 format (or packed format)
CD-R storage capacity	DICOM 3.0 format: approx. 300 images packed format: approx. 450 images
	DICOM send
	DICOM query/retrieve
Export	in TIFF or AVI format via CD-R
Documentation	DICOM Print
	Virtual Film Sheet
DICOM Worklist, MPPS	Data exchange via HIS/RIS
Paper printing	Printing of lists and images to a network paper printer

Dimensions and weights

Container	
Dimensions	approx. W=445 mm; D= 600 mm; H=585 mm;
Weight	approx. 80 kg

Electrical data

Power supply	Powered by system power supply
Nominal frequency	50; 60 Hz
Power	<900 VA (incl. 2 monitors)

Ambient conditions

Operation	Climatic class S
Temperature range	+10 °C to +35°C
Relative humidity	20 to 75% without condensation
Air pressure	50 to 106 kPa
Transport	
Temperature range	-20 °C to +70°C
Relative humidity	10 to 100% without condensation
Air pressure	50 to 106 kPa

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